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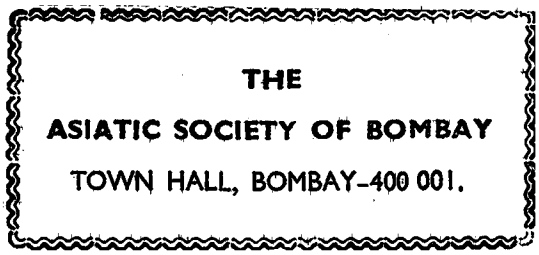

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NAVY (HEALTH).

RETURN to an Order of the Honourable The House of Commons, dated 22 April 1869 ;—*for*,

A COPY

OF THE

STATISTICAL REPORT

OF THE

HEALTH OF THE NAVY,

FOR THE YEAR 1867.

108802

(*Lord John Hay.*)

Ordered, by The House of Commons, *to be Printed*,
22 *April* 1869.

TO THE RIGHT HONOURABLE

HUGH C. E. CHILDERS, M.P.,

FIRST LORD OF THE ADMIRALTY,

&c. &c. &c.

Sir,

I HAVE the honour to lay before you the accompanying Statistical Report for the year 1867, which affords satisfactory evidence of continued improvement in the sanitary state of Her Majesty's Navy.

I have the honour to be,

Sir,

Your most obedient Servant,

A. ARMSTRONG,

Director General.

Admiralty, Somerset House,
16 September 1869.

To ALEXANDER ARMSTRONG, Esq., M.D., R.N.

&c. &c. &c.

Director General of the Medical Department

of the Navy.

Sir,

I have the honour to submit to you the Statistical Report of the Health of the Navy for the year 1867.

Compared with the preceding year there was a decrease in the ratio of cases entered on the sick-list in the Total Force, equal to 15·4 per 1,000; and in the invaliding rate to 5·1 per 1,000. In the ratio of mortality there was an increase to the extent of 1·3 per 1,000.

On the Home Station, the operation of the Contagious Diseases Act continued to be attended with favourable results to the naval service. Compared with the preceding year, there was a reduction in the ratio of cases of those diseases against which the Act is directed, to the extent of 10·1 per 1,000. This makes a total reduction compared with the average of the five years preceding the extension of the Act in 1866, equal to 42·3 per 1,000.

On the Mediterranean, South East Coast of America, and the Australian Stations, enteric fever caused some mortality. On the two former stations, the disease may be said to be endemic, and on the latter it prevailed at Sydney, and was attributed to an imperfect system of sewerage.

Two vessels were visited by severe epidemics of small-pox; the Vestal on the West Coast of Africa, and the Princess Royal in China. On the latter station, on which no fewer than thirteen vessels of the squadron were more or less affected by this loathsome and dangerous disease, the

risk incurred by ship's companies is very great, the inhabitants both of the Japanese and Chinese seaports being in the habit of inoculating their children during the winter months, and so producing small-pox in an epidemic form. This would indicate the necessity of every precaution being taken to ensure as far as possible the safety of ship's companies proceeding to that station, by ascertaining that every man is protected by effective vaccination.

Yellow fever prevailed epidemically on the North American and West Indies, and the Pacific Stations, and caused much mortality. A valuable communication on this disease as it prevailed in an epidemic form in the Royal Naval Hospital at Port Royal, Jamaica, will be found in the Appendix.

Despite the many sources of disease to which the various squadrons were exposed on different stations, it is gratifying to be able to report that, compared with an average of the Total Force taken for ten years, there was a decrease in the ratio of cases entered on the sick-list equal to 170·8, of invaliding to 7·6, and of mortality to 3·6 per 1,000.

I have the honour to be,

Sir,

Your most obedient Servant,

ALEX. E. MACKAY, M.D., R.N.,

Deputy Inspector General
of Hospitals and Fleets.

Admiralty, Somerset House,
16 September 1869.

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HOME STATION.

Home Station.

In the five different commands comprised in the Home Station, viz., The Nore, Portsmouth, Plymouth, Cork, and the Channel Fleet, seventy-five vessels of different classes were employed during the year 1867, of which fourteen were iron-clad; three were vessels of the fourth rate; and one was a vessel of the sixth rate: there were two sloops; fourteen stationary ships; eight drill ships for the Royal Naval Reserve; twelve coast-guard ships; six training ships for cadets and boys; five steam-vessels; two yachts; two store-ships; five training brigs for boys; and one gunboat. Of these, the iron-clads and the rated vessels which constituted the Channel Fleet were employed in duties analogous to those devolving upon the squadrons in active service on foreign stations, and in this respect they differed entirely from the other vessels comprising the Home Force. There was also a detachment of Marines employed for a short time in Ireland. The returns from fifty-five of the vessels were for the whole year, and from the remainder and the Marine detachment for periods varying from one to nine months. The mean force corrected for time was 21,600, and the total number of cases of disease and injuries entered on the sick-list 18,951, which is in the ratio of 877·3 per 1,000 of mean force, being a decrease, compared with the preceding year, equal to 111·4 per 1,000. Of these 426 were invalided, and 161 died, the former being in the ratio of 19·7 per 1,000, and the latter of 7·4, both these ratios being below the corresponding ones of the previous year.

The daily loss of service from all forms of febrile disease was in the ratio of 1· per 1,000; from diseases of the brain and nervous system, ·4; of the organs of respiration, 5·3; of the heart and bloodvessels, ·3; of the alimentary canal, ·4; of the liver, ·2; of the genito-urinary organs, 8·2; from rheumatism, 2·6; diseases of the bones and joints, ·2; of the special senses, ·5; of the skin and cellular tissue, 8·8; from dyspepsia and debility, ·9; and from wounds and injuries of

Home Station.

various kinds, 5·4. The average number of men daily sick was 814·6, which is in the ratio of 37·7 per 1,000 of mean force, being a reduction, compared with the preceding year, equal to 4·5 per 1,000.

Fevers.—There were 234 cases of continued and remittent fever; 128 of ague; thirty of small-pox; 106 of measles; twenty-two of scarlatina; fifteen of vaccinia; and twelve of varicella, under treatment during the year; and of these, fifteen cases of primary fever; one of ague; one of measles; and two of scarlatina, had a fatal termination.

There were two cases of primary fever in the Achilles, both of which occurred during the Christmas quarter of the year. In one the man had been on leave, at Cork, twelve days previous to the accession of the febrile symptoms which, in a mild form, were of the enteric type. In the other case the febrile symptoms, which were at first of a continued character, became afterwards remittent. The average duration of each of these cases on board ship was eighteen days, but one of them was sent to hospital.

In the Bellerophon there were thirty cases of primary fever, of which one proved fatal. This occurred in the person of a boy who was placed on the sick-list in the month of August, labouring under headache and a general sense of restlessness. On the fifth day profuse epistaxis occurred, and he lost a good deal of blood before it could be arrested. The lips were dry; the pulse 120; and there were some petechiæ on the body. He now became delirious, with great restlessness and jactitation. The bowels were free, and the stools dark in colour; the respiration thirty-two in a minute. On the eleventh he was passing his stools involuntarily, and on the twelfth he was comatose. He died on the morning of the fifteenth day. No examination of the body after death was made. No information is given in connection with the other cases which occurred in this vessel.

There were only three cases of primary fever in the Britannia, the training ship for cadets, one of which proved fatal. With reference to these cases, the staff surgeon* says—

"Two of these were of the common continued type, and the other typhoid. Neither of the former were severe attacks; they occurred in

* Staff Surgeon S. S. D. Wells.

in cadets, who made good recoveries. The latter terminated fatally on board. The man was placed on the sick-list on the 8th of February with catarrhal symptoms, accompanied with some febrile excitement. He was relieved by treatment, and pronounced convalescent on the 19th; but as he complained of weakness he was kept on the sick-list, given quinine and iron, and allowed to land for exercise on fine days. He was so much improved on the 23rd of February that he was granted leave until the 25th. On the 24th he was attacked with febrile symptoms, and on coming on board on the 25th complained of headache and pains in the limbs and loins, with a hot skin, quick small pulse, furred tongue, loss of appetite, and feeling of prostration. The febrile symptoms continued, and on the night of the 27th there was some delirium. He gradually passed into a typhoid condition, and died at 3.20 a.m. of the 3rd of March." Home Station.

There were two cases of primary fever in the Caledonia, both of which were of some severity, one being complicated with pneumonia, and the other proving tedious, and being accompanied with much prostration and headache. In both instances, however, good recoveries were made.

It does not appear necessary to refer to every individual ship in which cases of primary fever occurred. In many they were of a very simple and ephemeral character, dependent on dietetic errors, climatic vicissitudes, and exposure of different kinds; but in some they proved severe and fatal. Besides the vessels already referred to, fatal cases occurred in the Duke of Wellington, Excellent, Impregnable, Lion, Lord Clyde, Royal Adelaide, Royal George, St. George, St. Vincent, and the Wivern.

In the Duke of Wellington there were only two cases of primary fever, but both proved fatal in Haslar Hospital. One of these is said to have been a case of typhus fever, in which the characteristic eruption only appeared on the day of death. The other case was that of a quartermaster who was sent to Haslar labouring under what was considered to be remittent fever. He had been a fortnight ill before he presented himself for treatment, and then he stated that during that time he had had an accession of fever every morning. He was in a very weak and emaciated state, and since the commencement of his illness had been losing flesh rapidly. In hospital, phthisical symptoms rapidly developed themselves, and he sank exhausted six weeks after his admission.

There were twenty-three cases of primary fever in the Excellent, of which three proved fatal. One of these occurred in the person of a pensioner, who died of enteric fever, at his own residence, while on leave. In a second case in which the

Home Station.

disease was also of the enteric type, and proved fatal in Haslar Hospital, it was complicated with pneumonia, and with extensive ulceration of the prepuce and nates. The characteristic eruption was present in this case. With reference to the third case but little information is given. It occurred in the person of a pensioner who was placed on the sick-list on the 22nd of March, having, as he stated, had severe rigors on the previous evening. There was a considerable amount of febrile excitement when he presented himself, the skin was hot and dry, the tongue red and parched; there was urgent thirst, and the pulse was 110. During the forenoon of the same day there was some amount of delirium, and in this condition he was discharged to hospital, where he died on the 10th of April, being the twenty-first day from the first development of febrile symptoms. In hospital it is said he displayed symptoms of considerable effusion on the brain, but there was no post-mortem examination of the body.

Although there was no mortality from febrile disease in the Fox, a larger number of cases were entered on her sick-list than in any other vessel of the Force. They were mostly of an ephemeral character, however, the average duration of each case being between five and six days. The majority of these cases occurred during the Lady quarter of the year, when the vessel experienced very heavy weather off the coasts of Ireland and Wales.

There was a fatal case, entered under the head of primary fever, in the Impregnable, which presented some peculiar features. It occurred in the person of a mess servant who presented himself labouring under all the symptoms of pneumonia, for which he was sent to Plymouth Hospital on the following day. The report from the hospital is to the effect that he had been ill for a fortnight with cough, and pain in the chest, and that the day before admission he had had severe dyspnœa and pain at the base of the right lung.

"5th April. On admission the following symptoms were noted: face dusky; skin soft; pulse 104, weak; tongue dry, brown in the centre, red at tip; sordes about teeth; hurried respiration, 48; pain in the right side; dyspnœa; diarrhœa, with tenderness in both iliac fossæ; breath sounds loud and harsh all over chest; no crepitation. On the 6th: Respirations, 48; countenance anxious; perspiring freely; pneumonic crepitation on right side; cough viscid, with rusty sputum; urine dark and albuminous; wandering at night. He gradually became entirely unconscious, with persistent diarrhœa,—other symptoms unaltered. On the 15th of April, numerous rose-coloured

coloured spots appeared on the body—urine very scanty and highly albuminous. On the 18th, screaming and moaning continually; viscid, blood-stained sputum; respirations, 38;—19th: Skin clammy, very restless; expired at 8.30 p.m.

"*Post-Mortem Examination.*—Two ounces of sanguineous fluid in arachnoid cavity; brain-substance healthy. Right pleura distended with five or six pints of purulent fluid. Right lung collapsed and carnified; left lung congested. Two ounces of bloody serum in the pericardium. The mucous membrane of the cæcum and sigmoid flexure congested. No enlargement of Peyer's patches; no ulceration. Kidneys deeply congested. Liver healthy."

A fatal case, returned as fever, appears in connection with the Lion. It occurred in the person of a boy, who was placed on the sick-list with general febrile symptoms. He stated that for two days previously he had been suffering from headache and lassitude, and that these symptoms were becoming aggravated. He became delirious on the fifth night after reporting himself, and the symptoms are said to have indicated some brain complication. He was in a state of great prostration on the sixth day, when he was sent to the Royal Naval Hospital at Plymouth. In that establishment the disease was considered to be encephalitis, and the following is the abridged report of the Inspector-General.*

". . . . . Æt. 17, admitted from H.M.S. Lion on the 22nd of August, for fever. On admission he was perfectly insensible; there was difficulty to get him to swallow; the pupils were fixed and dilated; there was no stertor; he was constantly moving his hands about, grasping in the air, and picking the bed-clothes, at times grinding his teeth. Pulse 100, weak; face, sublivid; spasmodic rigidity of the muscles of the forearms. On the following day there was complete coma; during the night had several convulsive attacks; lies with his mouth wide open, and limbs rigid. Died at midnight. His mother stated that a fortnight since, at home, he complained of headache, and fainted on getting up in the morning, and that he was stupid and dull. *Autopsy.*—On removing the scalp the cranium was seen almost black from congestion, thin; veins and sinuses of dura mater gorged; no fluid in the arachnoid; milky fluid in sub-arachnoid space. The base of the brain from the optic commissure to the middle of the pons Varolii, and extending sideways for some distance across each crus, was covered with fine semi-organised lymph. There was some fluid in the ventricles. In the right lateral ventricle there was a black clot as large as a raisin, entangled in the meshes of the velum interpositum, and lying on the hippocampus major, which, together with the floor of the right lateral

* Inspector General J. G. Stewart, M.D.

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lateral ventricle was much softened. The fornix was also softened, and washed away under a gentle stream. The thorax and abdomen were not examined."

There was a fatal case of primary fever in the Lord Clyde. It occurred in the person of a young, stout, and plethoric seaman, who appears to have contracted the disease at Devonport. He was listless and heavy, and complained much of general as well as of frontal headache. There was a dusky redness about the face and neck, difficult, from the scanty light, to detect on board. He was transferred to hospital on the 26th of January, the day after his admission to the sick-list. In hospital the headache became more intense; there was double vision on the 29th; dilated pupils, with delirium, on the 30th; converging strabismus on the 1st of February, with low muttering delirium, subsultus tendinum, picking of the bed-clothes, &c.; he died on the 3rd of February. On post-mortem examination of the body, the cerebral substance showed numerous red puncta when sliced; the posterior and under-surface of the corpus callosum was softened. The thoracic and abdominal viscera were healthy.

A mess servant of the Royal Adelaide died of enteric fever in Plymouth Hospital. It is supposed that he contracted the disease on shore, where it is said to have been very prevalent, and where, indeed, it prevailed epidemically in the Marine Division. This lad was placed on the sick-list on the 30th of November, complaining of headache, pain in the loins, and along the course of the sciatic nerve of each thigh, with thirst, heat of skin, and anorexia. On the night previous to his admission to hospital (2nd December) he had been delirious. On his admission to hospital he was found to be labouring under diarrhœa, and on the chest and abdomen there were several rose-coloured spots. His symptoms in hospital took a steady downward course, and on the tenth day after his admission they indicated perforation of the intestine. He died exhausted on the seventeenth day of the disease, and on post-mortem examination of the body the intestines and omentum were found matted together; the upper part of the ileum was of a dark red colour, almost gangrenous; there were large patches of ulceration in the ileum close to the cæcum, and six inches from the cæcum there was a perforation about the size of a goose-quill; the solid organs were healthy.

There was one death from primary fever in the Royal George. The disease was of the enteric type, and occurred in

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in the person of a warrant officer in charge of a tender to that vessel. But very little information is given in connection with the case. The characteristic eruption of enteric fever was well marked; diarrhœa was a prominent symptom, and death appears to have been occasioned by profuse hæmorrhage from the intestines.

A fatal case of primary fever occurred in the St. George, in the person of a Marine in whom from the first there was great prostration of the nervous system. The case is thus referred to by the surgeon* of the ship.

"One case proved fatal; it was that of a healthy young Marine who came on the sick-list on the 14th of November. On the 2nd he went from the ship on two days' leave, remained away four days, and spent his time at Sherborne, in Dorsetshire, his native town. He appears to have been temperate in his habits. There was marked nervous depression from the first, gradually passing into delirium, lethargy, coma, subsultus, and death. A point of interest and some perplexity occurred towards the end of this case: the bladder, which up to a certain time had been relieved by the catheter, continued distended, notwithstanding its repeated introduction. The thought will naturally occur on this, that either the instrument was not in the bladder, or that the tube was obstructed. One fact, however, disposes of both these suggestions; it was this: that several times clear water welled up through the instrument, and flowed over to the amount of a few spoonsful, but neither by pressure on the abdomen, nor position of the body, could more be obtained, and the tube of the instrument was usually full of urine when withdrawn. Now if it had not entered the bladder, these things could not happen. A slight stricture existed at the opening of the triangular ligament, and there was some discharge from the urethra on admission. A No. 8 catheter passed readily enough, hitching a little at the point indicated. There was no bleeding from the urethra, and the curve of the silver catheter could be distinctly felt in the bladder by the finger passed into the rectum. Every attention was of course paid to keeping the tube clear.

"I may mention that the Surgeon of the Boscawen, as well as myself, passed catheters of different sizes under No. 8; neither had he any doubt as to the position of the instrument in the bladder: the result was the same, the water would not draw off. Why? Neither of us could give any satisfactory answer, even after a post-mortem examination made especially with that view. In proceeding to examine the body a No. 8 catheter (silver) was first passed. There was defined distension over the pubis. Some clear urine welled up through the instrument directly it was introduced, and a small quantity flowed over the end of the instrument; it then ceased, and could not be made to flow, either by pressure on the tumour, or by turning the body over at the edge of the table.

"On

* Surgeon P. Digan, M.D.

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"On opening the abdomen the bladder was found distended, of a somewhat cylindrical form, and reaching as high as the umbilicus; the instrument was clearly discernible and movable within it. It was decided to remove the bladder, with a portion of the urethra, with a view to examination. In the handling, and the movements necessary to effect this, the instrument being still retained in situ, the water flowed freely, not only through it, but also by its side, through the urethra. The water was natural; the coats of the bladder perfectly sound; there was no trace of injury, either in the bladder or in the urethra, no pouches, and no irregularities. Some of the coils of the small intestine were deeply congested, but there was no trace of inflammation anywhere.

"We know well enough that in fevers, after the bladder has lost its contractile power through oppression or insensibility, the urine after accumulating to a certain point dribbles away of itself. In this instance it not only did not do the usual thing, but it refused to flow through a large-sized cathether, aided by pressure and position. Before the urine had accumulated so as to give rise to swelling above the pubis, the negative results of catheterism suggested for awhile the idea that the case might prove one of suppression, an idea favoured by the fact that the bladder at no time pressed distinctly on the front of the rectum, the parts there felt flaccid to the finger introduced, owing perhaps to the peculiar, somewhat cylindrical, shape it assumed when distended, being lifted well out of the pelvis."

A fatal case of primary fever appears in Table IV. in connection with the Wivern. It occurred in the person of a stoker who was entered on the sick-list for an abscess of the cheek, which, after being laid open, took on an erysipelatous action, in which condition he was discharged to the Royal Naval Hospital at Haulbowline. While there he is said to have been attacked with typhus fever. The staff-surgeon* of the hospital, in his abridged report of the case, says:—

". . . . . was admitted on the 5th of July for erysipelas, the right side of the face and neck being affected, and mastication rendered difficult by the swelling of the parotid. The symptoms were of a low typhoid character, but no suspicion of typhus fever was excited until the 11th (six days after admission) when the peculiar rash of typhus was observed, and the patient discharged, and re-entered accordingly. The treatment from the first (a sustaining one) was appropriate, but the case nevertheless terminated fatally on the third day after the appearance of the petechiæ."

During the Christmas quarter of 1867 a rather extensive epidemic of enteric fever occurred amongst the Marines at head

* Staff Surgeon William Loney.

head quarters at Plymouth, and was of considerable interest in relation to the cause of the outbreak of this fatal disease. In the Quarterly Nosological Return from the Royal Naval Hospital at Plymouth for that period, the Inspector General, in his remarks on continued fever, says:—

"Of the thirty-three cases of fever admitted during the period of this Return, twenty-one were received from the Royal Marine Barracks between the 15th of November and the 12th of December, and were all without exception of a typhoid character, and four proved fatal. The remaining twelve cases were received from various ships, as follows:—Three from the Royal Adelaide, one typhoid, which proved fatal, and two simple continued fever; three from the Canopus, all simple fever; two from the Implacable, one typhoid and one simple; one from the Indus, and one from the Cambridge, simple; making, out of the whole number, twenty-three cases of well-marked typhoid fever, and ten where the symptoms did not much exceed febricula.

"Adverting to the cases received from the barracks, several of them seemed to have been considered as little more than catarrhal disease when first admitted into the Royal Marine Infirmary, but on admission here diarrhœa, depression, and typhoid spots on the abdomen and chest, sufficiently marked the disease, and the opinion formed during life was fully verified by the post-mortem examinations of the fatal cases. In one case, where the man was stricken down one day and died on the following, the inner lining of the colon had very much the dark appearance that is noticed in persons whose skin remains stained after small-pox: the glands were raised and dark. In another, the man was received with aphonia, and had been twenty-seven days under treatment at the Royal Marine Infirmary: there was perforation of the bowels in addition to the lesions of the larynx, for which he was originally admitted into the Royal Marine Infirmary. In the other two fatal cases, the usual morbid appearances, congestion and ulceration of the solitary and agminated glands, were found; one of these two was admitted into hospital with a well-marked eruption of measles, and was in consequence perfectly isolated, being in a separate block; the symptoms of typhoid developed themselves seven days afterwards, proving fatal in eight days. As a still further evidence of the low character of the fever, one man had a slough on the scalp over the occiput, and another several cold abscesses on various parts of his body after the fever had subsided.

"In attempting to ascertain the cause of this outbreak of fever, it was in the first place noticed that all the men had occupied different rooms before their illness. It was subsequently found that whilst we had so many cases from the Marines, the regiments of the Line and Artillery, although performing the same duty, and being on the same rations, had only sent one case to hospital in November, leading to the presumption that the disease had a local origin in the barracks; and it was further found that 379 out of the whole Marines occupied rooms in the new, or north, wing of the barracks. The men in this building had been in the habit of largely using

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water from a well nineteen feet deep, and eighteen feet from the surface, and this water was so much clearer than that derived from the town supply (leet-water brought into the town in pipes), that it was habitually used for drinking and cooking purposes; and although nothing can pass from the flooring of the court, which has a six-inch coating of asphalte, nor from the earthen pipes of the adjacent water-closets, which, when examined, were found entire; yet, from the very defective character of the entire sewage system of Stonehouse, all the wells in it are looked upon with great suspicion, and it is practically found that the occupants of many houses having wells have ceased to use the water from them for drinking and cooking purposes; and the medical officers of the hospital who were ordered by the Commander in Chief, on the 13th of December, to inquire into the origin of the fever, recommended that for the present the large spring should be closed, which was done on the 14th of December. The last case of fever was admitted on the 13th of December. The water has been sent to London for chemical analysis.

"It appears that almost the entire sewage of Stonehouse is disposed of by cesspools, and by being allowed to run waste into the soil. In Caroline-place, a street some twenty feet above the level of the barrack basement, and abutting at the rear of the north barrack wall, all the houses are understood to drain into a large fissure or chasm in the rock which underlies this part of the town. Still there is a difficulty in accepting the explanation of sewer-tainted water having caused this outbreak of fever. The north wing of the barracks had been occupied by the men for several years (nearly five), and yet although the wells had been accessible, there had been little or no typhoid fever amongst the men; nor, as far as I am aware, were they particularly obnoxious to diarrhœa or choleraic attacks, and I am consequently led to look for some additional causes.

"It appears that the new main barrack guard-house had been occupied for about three weeks only before the commencement of the fever, and had within it two water-closets which were separated only by a door from the guard-room, and were arched over by masonry, and quite unventilated; and twelve of the men in hospital stated that they had been taken ill just after a period of duty at this guard, and all complained of the fæcal stench from the water-closets whenever the door separating them from the guard-room was opened. These closets were locked up as soon as complaint was made to the quarter-master, and one day before the disuse of the water, and the inspection by the hospital medical staff. Another agent regarded with suspicion is the main sewer of the barracks itself: discharged considerably above low-water mark, the mouth of it is for several hours bare, and when there is a succession of strong easterly winds, the sewage gases are blown back into the barracks. If this, however, has caused any fever, it might reasonably be expected that the old block would first have felt its effect. Another agency also looked upon with suspicion was, that the soil on the site of the old houses in Barrack-street, formerly occupied by the lowest classes, and since thrown into the barrack square, was likely

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to be highly tainted with sewage matter; and this was turned up to the depth of two or three feet, in order to level the parade. This work was going on concurrently with the outbreak of fever.

One very noticeable fact in this outbreak was the extreme youth of all the cases; in only two instances were they above twenty-five years, the very great majority being youths about nineteen or twenty years of age, who were recruits or had only just finished their drills, so that it would seem as if the older soldiers were either habituated to, or less impressionable to, the conditions which produced the disease in the young ones. In all the cases the symptoms were severe, and of a low type from the first, requiring great support and most assiduous nursing; some made a very protracted convalescence. There were only two cases of a decided relapse; one succumbed; the other, after a period of great danger, rallied. In two, there were at the outset, serious head symptoms; one, as before-mentioned, has sloughing of the scalp from blistering. The most frequent secondary complication was bronchitis, and indeed in many cases this was so marked a symptom in the earlier days, that they were sent in for it alone, the enteric symptoms causing little uneasiness. In the treatment, every medicine liable to depress vital power, or irritate the bowels was carefully avoided, and great dependence placed on counter-irritation with turpentine, a judicious use of medicinal and alcoholic stimuli, and as much nourishment in the form of beef-tea and milk as the patient could be induced to take, and several seemingly hopeless cases were thus, without doubt, tided over the critical period."

Two analyses of the water in use among the Marines at the outbreak of the epidemic were made, one by Professor Abel, Chemist to the War Department, the other by Professor Letheby, of the London Hospital; both are of sufficient interest to warrant their being introduced here. Professor Abel says:—

". . . . . Samples of water forwarded to this Department from the Royal Marine Barracks at Plymouth have been submitted to analysis.

"The results show, that the water taken from the wells at Clerk's brewery (north well), and Hare's brewery (south well), cannot be considered wholesome for drinking purposes. The proportions of organic matters in both samples are not high, but they appear to be derived from drainage; and this conclusion is supported by the fact, that both waters contain large proportions of nitrate; that in the north well amounting to five grains per gallon, while in the south well the proportion is 11·49 grains per gallon.

"The water from the north well is suitable for detergent purposes; that from the south well is considerably harder, and is not appreciably softened by boiling.

"The water from Davenport Leet is perfectly wholesome, and in all respects well suited for general domestic purposes; it contains only 3·3 grains of solid constituents per gallon, a very small proportion of which (0·2 grains per gallon) consists of organic matter,

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of peaty origin. Only traces of nitrate are present, and the water is very soft."

The following is Dr. Letheby's Report :—

"Report of the examination of two samples of water from the Royal Marine Barracks, Plymouth.

"The samples were sent to the laboratory on the 25th of December last, and they were received on the 30th.

"They were contained in gallon stoneware bottles, and were labelled as follows:

"No. 1. Water from North Well, Royal Marine Barracks, Plymouth.

"No. 2. Water from South Well, Royal Marine Barracks, Plymouth.

"Both samples were quite bright, but when examined in large volume, they were found to be coloured with organic matter, No. 1 having an olive brown colour, and No. 2, a yellowish green tint.

"They were quite free from lead, and were therefore in this respect unobjectionable.

"The constituents per imperial gallon were as follows; and for comparison I have added the composition of the New River water supplied to this Metropolis.

Constituents.	Well No. 1.	Well No. 2.	New River Water.
	Grains.	*Grains.*	*Grains.*
Carbonate of lime and magnesia	7·17	11·21	12·58
Sulphate of lime	6·68	6·39	2·41
Alkaline chloride (common salt)	5·58	9·77	1·28
Alkaline nitrate	0·80	5·99	2·08
Silica and alumina	0·75	1·00	0·38
Organic matter	0·51	0·47	0·32
Total per Imperial gallon	21·49	34·83	19·05
Ammonia, ready formed	0·029	0·014	0·000
Ditto - from organic matter	0·030	0·015	0·002
Total ammonia per gallon	0·059	0·029	0·002
Oxygen required to oxydise the organic matter in a gallon	0·064	0·059	0·50
	Degrees.	*Degrees.*	*Degrees.*
Hardness before boiling	9·0	17·0	14·0
Ditto - after boiling a quarter of an hour	7·5	11·0	4·0

"These results show, that both the samples of well water from the Marine Barracks are charged with matters derived from surface drainage; and the large amount of alkaline chlorides, and in the case

case of well No. 2, of nitrates, as well as the excessive proportions of ammonia, indicate the existence of sewage matters, which have become more or less changed during their passage through the ground in which the wells are sunk.

"I would advise, therefore, that both of the wells be abandoned as far as the use of the water for drinking purposes is concerned."

Small Pox.—Thirty cases of small-pox were under treatment during the year, but they occasioned no mortality.

A single case of small-pox occurred in the person of a seaman of the Canopus, at Plymouth, a coloured man. No information is given in connection with the case.

Small-pox was epidemic in Sheerness in the early part of the year; and eleven cases occurred in the Cumberland, and one in the Naval Barracks, the men quartered in which are borne on the books of the Cumberland. In the larger proportion of the cases, the disease was of a modified character; but no mention is made in the returns from the Cumberland, as to whether the men had been previously vaccinated or not. The case in the Naval Barracks was post-vaccinal and mild.

A single case of small-pox occurred in the person of a boy of the Dasher, at Jersey. He presented good vaccination marks in both arms. The disease attacked him when he was convalescing from scarlatina. It was epidemic on the island.

Four cases of small-pox occurred in the Donegal at Liverpool. The surgeon* makes the following remarks on them:—

"Four cases occurred during the last quarter of the year. As regards the case of the first patient, a private marine, it is to be observed that this man had not been out of the ship for thirteen days previously to his being placed on the sick-list; and there was no direct evidence to prove that he had associated with any one who was suffering from, or who had had small-pox. Again, it is to be observed that although the first-named patient was placed on the sick-list on the 12th of November, and on the 14th was sent to sick quarters, the three other patients did not come under treatment until the 7th, 9th, and 15th of December, so that if these were in any way dependent on the first patient, the period of incubation must have been unusually long. In all the cases, the premonitory symptoms of rigors, lumbar pains, nausea, vomiting, and malaise were so persistent and well marked as to threaten a severe form of the disease, and

* Surgeon C. F. A. Courtney.

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and were indeed followed by a pretty copious eruption; but the modification induced by vaccination caused matters to end most favourably, and the patients all made a good and rapid recovery in sick quarters. After the first appearance of the complaint on board, the whole of the ship's company was carefully examined to see that everybody had been properly vaccinated. In several cases in which the cicatrices were indistinct, the men were re-vaccinated. Every precaution was taken as regards the thorough cleansing of the bedding, &c. These measures, together with the instant removal of the patients out of the ship, no doubt prevented the spread of the disease."

In the Duke of Wellington, at Portsmouth, a boy who had recently been entered presented himself with a partly papular, partly pustular eruption, over the face slightly, and more markedly over the chest and arms, which had made its appearance after twenty-four hours of slight premonitory symptoms. He showed two well-formed and large marks of vaccination. The case was considered doubtful; but for safety he was sent to Haslar Hospital, where it was pronounced to be modified small-pox. There was no clue to the source from whence the disease was contracted.

There were three cases of small-pox in the Fisgard, at Woolwich. The disease prevailed extensively and fatally on shore. In two instances the men did not go on board the ship at all, but went direct from the house in which they were taken ill, to the hospital. One of these had good vaccination marks, and the disease was of the modified type, but whether the others were vaccinated or not, does not appear to have been noted.

There were three cases of small-pox in the Formidable at Sheerness. The surgeon* of the vessel says:—

"Small-pox prevailed in the town from July 1866 to June 1867: until it had all but exhausted itself, in fact. There was no resident magistrate to enforce the law, and, so far as I could see, matters were allowed to take their own course. The disease was of an exceedingly mild form; and I have been informed that in the garrison of between 300 and 400 artillerymen, they had not a single case. We fortunately escaped with only three, which occurred in the first quarter of the year. All had been vaccinated. One assumed the confluent, and two the discrete form. I need hardly say, that on the disease developing itself, the cases were immediately removed to Chatham Hospital."

There

* Surgeon Robert Irvine, M.D.

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There was a single case of small-pox in the Trafalgar, at Queensferry, in the Firth of Forth. The man had been previously vaccinated, and the disease was modified, but the premonitory symptoms were very severe, and so characteristic that every preparation was made to land the man before the eruption appeared. In this instance the source of the infection could not be traced.

Three cases of small-pox occurred in the Virago. The disease was contracted at Sheerness, where, as has been previously stated, it was prevailing epidemically on shore. One of the persons attacked had been previously vaccinated, but no information is given on this point with respect to the others.

There was a single case of small-pox in the Warrior. The disease was probably contracted at Portsmouth, but little or no information is given in connection with it.

Measles.—There were 106 cases of this form of eruptive fever during the year, of which one terminated fatally. The disease was almost altogether confined to the training ships for cadets and boys. The Boscawen and the Impregnable had the largest number of cases; but it also occurred in the Britannia, the Implacable, and the St. Vincent.

There were twenty-eight cases of measles in the Boscawen, at Portland. The disease was brought on board by a boy who had been on leave; and the history of the epidemic is thus given by the surgeon* of the vessel:—

"The attack of measles which occurred in May, and was imported into the ship from London, by a boy who had been on leave, resulted in an epidemic—a very mild one, fortunately for us. The first boy was removed from the ship directly the eruption began to appear, and to this is to be attributed the slow propagation, and mild character of the disease. Before the second case appeared, eleven days had elapsed; but to show the direct communication between the first and second cases, it may be stated that the second boy attacked was lying ill in the sick-bay in the next bed to that to which the first boy with measles was conveyed. This second boy was nearly recovered from a severe attack of quinsey when the case of measles came in, and had that day got out of his bed for a little while, so that the time they were in proximity must have been very short. The second boy got quite well of his quinsey and went to duty; when, on the eleventh day after the first boy was attacked, he felt ill with a return of his sore

* Surgeon Henry Slade.

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sore throat and catarrh, and in a few hours the eruption began to show itself on the face. He was as soon as possible sent out of the ship to sick quarters. On the following day, seven more cases occurred, some being so slight that I only considered them suspicious, from the catarrhal symptoms, redness and watering of the eyes, hoarseness, &c., taken in connection with the known existence of measles. Some of these cases, I believe, never had a distinct eruption, but, as they went from under my care, I cannot be sure of this.

"In the course of four days after the last boys were sent to sick quarters, nineteen more were put on the sick-list, with very slight symptoms. These cases I placed under a screen on the orlop deck; as they were doubtful, I considered that a sufficient separation from the rest of the ship's company. Others applied who were not put on the list, and I found there was a panic among the boys generally about the measles.

"As soon as it was reported that measles had appeared in the ship, an old twenty-six-gun frigate, the Actæon, was sent to us for a hospital ship, and proved very useful. To her we transferred all the cases from this ship, with a small staff of attendants and officials. In arranging them on board the Actæon, I directed their hammocks to be hung on the main deck, leaving an interval of one hammock space between each two. The ports were opened or shut according to the temperature and weather; in fact, free ventilation was maintained, which, as the deck was clear, was not difficult. The patients were visited twice a day by the medical officers of this ship. After keeping the cases ten days on board the Actæon, all the symptoms having subsided, they returned to their duty in this ship. The earlier cases that had been sent to sick quarters ashore were placed for a few days on board the Actæon before arriving here, to diminish the risk of their conveying contagion."

The epidemic was confined to the month of May, all the boys with measles being discharged from the sick-list by the 1st of June.

Seven cases of measles of a mild type occurred in the Britannia, the training ship for cadets at Dartmouth. They were at once transferred to the cadets' sick quarters on shore, where they made a speedy recovery. In the Implacable, at Plymouth, there were nine cases of this disease, also of a mild character.

In the Impregnable, at Plymouth, there were thirty-two cases of measles, one of which proved fatal. The first case occurred in the person of a boy, who had been sleeping for three nights in his mother's house, where his sister was ill with the disease. He was placed on the sick-list on the 22nd of February, and on the following day discharged to hospital. On the 2nd of March, six cases of measles occurred

curred among boys who had been suffering from catarrhal symptoms; they were immediately sent to hospital. On the 4th of March three cases were sent to hospital, and on the 5th seven. On the afternoon of that day, 240 boys, who stated that they had never suffered from measles, were sent to the Pique, a hulk in the harbour. During the first three days of their stay there, twelve cases of measles, or suspected measles, were sent to hospital, and two from the Impregnable. The epidemic terminated with these cases, and on the 20th of March the boys who had been sent to the Pique returned to the Impregnable. The disease was of a mild type, as a rule. The case which proved fatal occurred in the person of a boy who was placed on the sick-list on the 1st of March, with what were looked upon as ordinary catarrhal symptoms. On the 5th, the characteristic eruption of measles made its appearance, and he was at once sent to hospital. On the following day he was reported to be very drowsy, and had passed his fæces in bed. He became more and more comatose, and died in a convulsion on the 7th of March. On post-mortem examination of the body great congestion of the membranes of the brain was found. The sub-arachnoid space was full of milky fluid. On slicing the brain numerous bloody puncta exuded. There was no effusion into the ventricles.

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There were thirteen cases of measles in the St. Vincent, the training ship for boys at Portsmouth. The disease was brought on board by two brothers, doing duty as schoolmasters, who had contracted the disease at their parents' house, where their sister was affected with it. Each case, as it presented itself, was at once transferred to hospital, and in this manner, and by careful observation and immediate isolation, the disease was eventually got under.

Scarlatina.—Twenty-two cases of this form of fever were under treatment during the year, of which two proved fatal.

In the Britannia there was a single case of scarlatina. It occurred in the person of a cadet, and at first was somewhat obscure in its general symptoms. Ultimately, however, in sick quarters, they became very characteristic. He made a good recovery, being thirty-three days under treatment.

There were five cases of scarlatina in the Dasher. The disease was prevailing in an epidemic and very fatal form in Jersey, where the vessel was stationed. No information whatever is given in connection with these cases.

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In Table IV., a death from scarlatina appears in connection with the Dauntless. It occurred in the person of a seaman doing duty in the tender to that vessel, who, it is said, had not been on shore for three or four weeks previous to his applying for medical assistance. The case was rendered very obscure by some anomalous symptoms which presented themselves, and by the fact of his labouring under a venereal affection at the time. He was being treated for this latter disease when, eight days after being entered on the sick-list, he had chills, with vomiting and purging, and during the night some amount of delirium. On the following day he was somewhat better, but the pulse was frequent, which it had not been before, and the nausea continued. Next day, his skin was covered with the eruption of scarlatina, his throat highly inflamed, and covered with diphtheritic patches, and the circulation was weak and rapid. Two days afterwards he died, the eruption being well out then, and the throat covered with diphtheritic exudation.

There were two cases of scarlatina in the Duke of Wellington. The first occurred in the person of a mess servant, who probably contracted the disease on shore; and the other in a seaman who slept near him. Both cases were discharged to Haslar Hospital, where they appear to have done well.

There were, strictly speaking, two cases of scarlatina in connection with the Excellent; but one of these, which proved fatal, did not become developed until after its reception into Haslar Hospital, to which the boy had been sent as a case of continued fever. The other case occurred some months later in the year, in the same mess as that to which the first boy had belonged. When sent to hospital, it had all the appearance of proving a mild attack.

There were single cases of scarlatina in the Fisgard, Ganges, Liffey, St. Vincent, Viper, and Wellesley; two cases each in the Implacable and Victory, and three in the Pallas. In the majority of these cases, the disease was of a mild type. With reference to those occurring in the Pallas, the surgeon* makes the following remarks:

"During the first half of the month of January, the ship was anchored off the clean and healthy little village of Rathmullen, in the secure anchorage of Lough Swilly, where none but the ordinary diseases

* Surgeon Robert Creighton.

diseases incidental to the winter season were prevalent, and even those but few and of little note. Home Station.

"On the 18th of January a young officer presented himself with rigors and cynanche, symptoms believed to be of a diphtheritic character, but on the fourth day this idea was dispelled by the appearance of the eruption of scarlatina, although the strawberry tongue was not present. The case was a very severe one, although not of the malignant type, but being attended from the first day by extreme prostration, with intense cerebral excitement caused much anxiety. It was afterwards ascertained from the patient that this intense cerebral excitement is a peculiarity of his, and accompanies all his febrile attacks, and on one occasion, on the coast of Syria, became very alarming to his medical attendant. The day the eruption came out, the ship was on her passage round to Lough Foyle, but from his dangerous state and the inclemency of the weather, it was impossible to remove him out of the ship till the 29th, eleven days after the attack, an untoward but unavoidable delay. He was, however, carefully removed to the best, but very poor, accommodation provided as sick quarters in Moville.

"On the 20th of January a boy presented himself with cynanche in a mild form, but the strawberry tongue, and the development of the other case on board, rendering the symptoms suspicious, he was at once removed to the shore.

"On the 29th of January the third case occurred, in the person of a young midshipman, who, complaining of faintness with nausea and slight sore throat, was on examination found red all over with the roseate hue of the disease. He was also at once removed to the sick quarters on shore. No other cases appeared on board.

"The nature of the disease being now declared, stringent measures of precaution to arrest its progress were immediately put in force, first, by the isolation as far as possible of the first case, which could not be removed. This officer was, through the kindness of the paymaster, given his airy and well-lighted cabin on the after part of the main deck, and a screen hung up, behind which his attendants were placed, and all communication as much as possible avoided.

"Secondly, by the removal of the gun-room officers to mess on the main deck under a screen, their mess-place below being thoroughly cleansed, for that was considered to be the focus of the disease which had been imported on board. It is most gratifying to be able to state that these judicious measures of precaution were attended with the most beneficial results. The disease was stopped on board; with those two confirmed cases, and one apparent one (for in this latter there was no eruption), it commenced and ended, notwithstanding the prolonged and unavoidable detention of the first and worst case on board, the presence of more than eighty boys, and the greatly over-crowded, cramped, confined, ill-ventilated, ill-lighted gun-room.

"Of the three cases sent on shore the first improved gradually but very slowly, and had a tedious prolonged convalescence. The second case remained of a doubtful nature; a mild sore throat, with a strawberry tongue and a little fever, were all the symptoms, and they soon disappeared. The third case, being mild, did well through all its stages.

"When able to travel, the two officers were granted a month's

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leave each, the more effectually to guard against contagion by a too early return to the ship.

"The origin of these cases on board is not very clear. Their probable source may be traced in two directions, far apart from each other, but sufficiently near to warrant the supposition that one or the other place may have given it birth. There was no scarlatina in Rathmullen, or in its immediate neighbourhood, but at a distance of about some sixteen Irish miles, a village beyond a range of bleak mountains, over which there is not very much communication; it was said to exist. This village lay north-west of our anchorage.

"In the opposite direction, about due east, on the eastern shore of Lough Foyle, separated from us by the whole expanse of that water, and from fifteen to twenty miles of mountain land, lay a village where the disease was really very prevalent. There is direct and frequent communication with the city of Derry, only ten miles from it, and to the city of Derry nearly all our officers went by day and night to spend their leave; so to this place I rather incline to trace the source of the disease, particularly as it only appeared among the officers."

Diseases of the Brain and Nervous System.—There was a slight reduction in the various ratios coming under this head, compared with the preceding year. Two hundred and twenty-five cases of different forms of disease were added to the sick-list, of which about one-fourth were invalided, and nine terminated fatally. The most fertile sources of invaliding were epilepsy and paralysis; the greatest mortality was occasioned by disease of the brain, and apoplexy.

There was a fatal case of disease of the brain in the Duncan. It occurred in the person of a marine of sound constitution and robust appearance, who was placed on the sick-list on the 30th of August for headache, caused, it was thought, by exposure to the direct rays of a hot sun while re-fitting ship in Portsmouth Harbour. It was accompanied by giddiness and slight febrile symptoms which, in the course of four or five days, quite subsided under the use of purgatives, diaphoretics, and quinine. Soon after this he began so complain from time to time of giddiness, pain in the occipital region, feverishness of an intermittent character, and general weakness, for which quinine was given, and blisters were applied to the nape with benefit. The pulse during this period ranged from 88 to 108, the respirations were unaffected, and the pupils and general functions were natural. He continued in this condition for about a month, when he had a smart attack of bronchitis, which soon yielded to the usual remedies, but left him emaciated, weak, and giddy. Under the use of gentian, quinine, and wine, he improved very much for a fortnight,

night, although the pulse never fell below 88. On the 2nd of December it was observed that his conversation was incoherent and his manner eccentric; the pulse was 96, the appetite good. On the following day his gait was unsteady and shuffling, and a few days afterwards there was wandering delirium, extreme restlessness, and incontinence of urine. When roused he answered questions rationally, and complained of giddiness, slight occipital headache, and weakness of the legs. The pulse was 94, the bowels regular, and the face pale and shrunken. Blisters were now constantly applied to the nape, and enemata and castor oil given as required. He now began to lose flesh, and there were occasional attacks of nausea and bilious vomiting. He was alternately quiet in bed, or sitting up for a short time, and restless and depressed in spirits; the intellectual powers began to fail; the pulse averaged 100, and became weak and intermittent; the bowels were torpid; the urine was passed constantly in bed, and there were convulsive movements of the fingers, hands, and arms; the pupils were contracted and sensible to the stimulus of light; he still answered rationally when roused. Counter-irritation to the nape was kept up, a little wine given daily, and generous diet allowed. He continued in this state until the 21st of December, when it was observed that the flushing and pallor of the face alternated with each other; the same evening he became semi-comatose, the breathing was almost stertorous; there was slight facial paralysis of the right side, the whole body became affected with tremor, but especially the muscles of the upper extremities. On the 22nd he gradually lapsed into complete coma; respiration was hurried and laborious, the pulse 130, small, weak, and intermittent, and he died at 3.30 p.m.

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The preceding details of this case are furnished by the medical officer* of the Duncan, who also gives the following report of the post-mortem examination of the body:—

"Autopsy, twenty hours after death. On removing the calvarium the dura mater was found to be much thickened and firmly adherent at different points to the surface of the brain. The vessels of the brain were much congested, the whole surface covered with patches of lymph and serous effusion, and at the base was a large quantity of serous fluid; the substance of the brain was soft, and easily broken down; the ventricles were distended with limpid serum. At the upper part of the medulla oblongata, and embracing the

* Surgeon D. M'Ewan, M.D.

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the corpora pyramidalia, was a circular abscess which contained about two drachms of greenish pus. No other organs were examined."

A fatal case of abscess of the brain occurred in the person of an officer of the Excellent. He was on leave at the time of his death, and no details in connection with the disease are given.

A petty officer of the Raven, tender to the Royal George, died of congestion of the brain, after an illness of only twelve hours. No further particulars of the disease have been obtained.

A fatal case of inflammation of the brain occurred in the person of a gun-room servant of the Victory, who was sent to hospital as a case of remittent fever. He had been subject to occasional attacks of constipation and biliary derangement, and he complained on the morning of the 24th of November of constant sickness, great headache, and general malaise; his bowels had been confined for some days, and his tongue was very foul; the skin was acting freely. He was ordered an ipecacuan emetic, to be followed by a purgative. The emetic only acted once, and the bowels were slightly moved, with some following relief. In the evening he was ordered a mixture of gentian, soda, and hydrocyanic acid. On the following morning a great change was noticed in his appearance: his countenance was flushed, the skin covered with a clammy perspiration, the tongue was more foul, the pulse full and hard, and he faintly complained of great pain in the head, which he could scarcely keep up; he suffered much from ineffectual efforts to vomit. In this condition he was sent to hospital, where death occured within twenty-four hours. On post-mortem examination of the body, the brain was found to be much congested, the meninges unusually dense in structure, the sub-arachnoid space everywhere contained lymph undergoing purulent degeneration; a large amount of serous effusion was present, the ventricles being filled with it, and the substance of the brain was very vascular, with numerous bloody points. There was a general absence of coagulation of the blood, and no clot had formed either in the thorax or skull, beyond a small one lying in the lateral sinus; the liver was congested, and the other organs appeared healthy.

A fatal case of apoplexy appears in the returns from the Durham. It occurred in the person of a seaman of sanguineous temperament, who had long led a very irregular life. He

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He was admitted to the sick-list on the 5th of June, complaining of general dyspeptic symptoms, with frequent nausea, and irritability of stomach after taking food. On the following day he complained of frontal headache, with occasional giddiness; his appearance was unfavourable, his countenance looking very anxious. On the morning of the 7th he felt very unwell, complaining much of giddiness and general headache. In the evening the bowels became relaxed, and on the following morning, immediately after having been at stool, he gave a loud scream, was seized with violent convulsions, and became insensible; he became sensible again for a time, but the convulsions returned, and were frequent during the day, and on the morning of the 9th. On that day he had lost the power of swallowing. In the afternoon there was complete insensibility, and on the morning of the 10th he died. There was no post-mortem examination of the body.

A marine of the Indus was found dead, at midnight, in one of the streets of Devonport; the body was in a crouching attitude, with both hands firmly grasping some railings in front of a house. On post-mortem examination, copious extravasation of blood at the base of the cerebellum was discovered, evidently from rupture of one of the occipital sinuses. There was also extensive hæmorrhagic engorgement of both lungs, and remarkable turgescence of the jugular vessels of both sides.

There was a fatal case of apoplexy in the Helicon. It occurred in the person of an officer who had been complaining of aguish symptoms for some days. There was nothing, it appears, in the general features of his case to cause any alarm until within an hour or two of his death. When seen by the medical officers who were called to his assistance, he was found to be insensible, cold, and pulseless, and breathing stertorously. From this condition he could not be rallied. No post-mortem examination of the body appears to have been made.

Diseases of the Organs of Respiration.—There was a decrease in the case and invaliding rates under this head, compared with the preceding year, but the ratio of mortality was slightly higher. Of 394 cases of inflammatory disease which were under treatment, twenty were invalided, and nineteen proved fatal; and of 160 cases of phthisis and hæmoptysis, eighty-four were invalided, and forty proved fatal. The average duration of each case of inflammatory disease on

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board ship and in hospital was between thirty-two and thirty-three days.

Catarrhal affections were very common in the Force during the first quarter of the year, and they appear to have prevailed almost epidemically in the Excellent, Liverpool, and Royal George.

In the Britannia there was an epidemic of mumps in the Lady quarter of the year; it commenced on the 12th of February, and up to the end of the quarter forty-eight cases had been entered on the sick-list. Fifty-six cases altogether were admitted to treatment during the epidemic. The staff surgeon* in charge of the cadets sick quarters, to whose care they were transferred, says,—

"Cases of cynanche parotidæa continued to be admitted at different intervals from this period until the end of April, when the disease ceased, there being no return of it from that date until the termination of the year. Of the fifty-six cases treated, the majority were in a mild form. Some had both parotid glands affected, others one gland only; a few the sub-maxillary as well as the parotid glands. Beyond these, the disease did not extend to other glands, such as the mammary, testis, &c., as I have frequently observed in former epidemics of this character. In a few instances there were feverish symptoms, with general constitutional disturbance, which generally yielded to diaphoretics and mild aperients. In none of these cases was it found necessary to apply iodine locally, warm fomentations constantly applied having accomplished the desired end."

Diseases of the Heart and Bloodvessels.—There was a reduction in all the ratios coming under this head, compared with the previous year. Of 105 cases of functional and organic disease of the heart which were entered on the sick-list, forty-four were invalided, and fourteen terminated fatally.

Aneurism of the abdominal aorta proved fatal in the person of a stoker of the Asia. He had been entered on the sick-list as a case of dyspepsia, his chief symptoms being wandering pains over the abdomen, loss of appetite, and debility. His tongue was furred and his bowels confined. He said that he had suffered from pain in the abdomen for more than two months, felt particularly after exposure to cold. Two days after being entered on the sick-list, he had a severe attack

* Staff Surgeon J. T. U. Bremner, MD.

attack of abdominal pain, for which fomentations and sinapisms were employed without affording any relief. He was relieved, however, after vomiting, and got quite free from pain. Some days afterwards, when on shore, he had a recurrence of the pain of a very severe character. When visited, the surface of the skin was found bedewed with perspiration; there was no particular pain on pressure; the bowels were confined, the pulse regular. In this condition he was removed to Haslar Hospital, where he obtained but little relief, the severe pain continuing for about a fortnight, when he died suddenly in great agony. On post-mortem examination of the body, an aneurism of the abdominal aorta was discovered, which had burst into the peritoneum; it was about four inches long by three broad, and involved the cœliac axis.

Diseases of the Alimentary Canal.—There was a reduction in the ratio of cases coming under this head, compared with the preceding year, equal to 35·5 per 1,000, and of mortality equal to ·3 per 1,000. These reductions were almost altogether attributable to the comparatively few cases of diarrhœa that were under treatment, and to the absence of malignant cholera, which had prevailed epidemically in England in 1866.

A fatal case of enteritis occurred in the person of a pensioner borne on the books of the Asia, a man of most dissipated habits, who was taken ill on shore with symptoms, at first, of obstructed bowels. When visited, he was found in one of the worst streets of Landport, occupying a close room in a public-house. He was suffering great pain in the abdomen, and there was tenderness on pressure about the umbilicus. The tongue was furred, the centre dry; the pulse small. The disease had commenced on the previous day with severe pain in the abdomen, frequent straining at stool, with tenesmus; there was nausea, but no vomiting. He was given a purgative, without relief; an enema was then administered, which produced a scanty evacuation. Subsequently purging set in, without abatement of the inflammatory symptoms, and he sank exhausted on the fourth day after his entry on the sick-list. He was too ill to be removed from the house in which he was taken ill, and no post-mortem examination of the body appears to have been made.

A petty officer of the Canopus presented himself, complaining of extreme debility, and of being unable to retain any food, vomiting being at once occasioned by it. He was

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much emaciated, the pulse was small and weak, the skin cold, and the tongue furred; there was no thirst. The bowels acted once daily. He had been invalided for fever from the West Coast of Africa, and had been subsequently in hospital for some time. As the blandest nutriment could not be retained, he was at once discharged to Plymouth Hospital. There it is reported that he was a prematurely aged man, and had been a hard liver. There was no pain on pressure over the stomach; the liver was not enlarged; the superficial abdominal veins were distended; vomiting came on one or two hours after meals, the vomited matters being chymified. Ten days after his admission to hospital he had become so feeble and emaciated, and the vomiting was so constant, that he was fed by enemata of beef-tea and eggs. A week afterwards, he died worn out. On post-mortem examination of the body, great thickening and corrugation of the pyloric extremity of the stomach, with contraction of its orifice, were found. There were numerous patches of congestion on its mucous membrane, as well as on that of the duodenum. The liver was slightly softened and myristicated. The other solid organs were healthy.

There were two deaths from inflammatory disease of the intestines in the Revenge. One of these occurred in the person of a petty officer serving in a tender. He was brought on board the Revenge, having been ill for the past five days, complaining of general pains of the body, headache, and rigors followed by flushes of heat over the face and head. The skin was of natural temperature to the touch, but was cold to his own feelings. The pulse was 114; the tongue coated with a brown fur at the sides, and beef-red colour in the centre. The bowels had been relaxed for some days, there being usually three evacuations daily. He had no appetite, was much debilitated, and complained a good deal of thirst. Under the treatment to which he was subjected, the diarrhœa ceased, and the bowels acted naturally. Irritability of the stomach, however, which had set in, continued persistent, and he had troublesome headache, accompanied with epistaxis and occasional bleeding from the gums. He died on the morning of the fifth day after being brought on board the Revenge. The post-mortem examination of the body is thus reported by the staff-surgeon* of the ship:—

"On making a post-mortem inspection, the abdominal muscles appeared

* Staff Surgeon Allan Brown, M.D.

appeared converted into firm fat. The mesentery was also loaded with firm fat, and drawn greatly to the right side of the abdominal cavity. The liver was much enlarged, very firm, and its gall-bladder very full. The small intestines were conspicuous for their dark brown colour. The stomach and bowels were strongly bound together by old adhesions. The pancreas was small, hard, and and gristly on being cut into. The mucous membrane throughout the stomach and small intestines was softened, pulpy, of a dark, putrid, brown colour, easily detached by the finger-nail. In the upper part of the jejunum were some patches, more or less circular in shape, showing the muscular coat completely denuded of its mucous membrane. This intestine was so firmly adherent and softened, that it gave way in the attempt to remove it. The lower third of the ileum and the large intestines appeared free from disease, as did the remaining viscera, but throughout the abdominal cavity there was a remarkable tendency to fatty formation or deposition." Home Station.

The second fatal case in the Revenge one of peritonitis) occurred in the person of a boy, and is said to have been the result of a slight accident occasioned by jumping out of a railway van in motion. The boy belonged to one of the tenders to the Revenge, and was brought on board complaining of diarrhœa of three days' duration. He had been purged five times during the night, the evacuations being watery. He had experienced rigors, not, however, followed by any heat of skin. The tongue was coated, and there was some pain and tension over the colon; there was some thirst, and the pulse was 100, and somewhat irregular. On the fifth day after being brought on board the Revenge there was a great increase of abdominal pain, with tension of the muscles and flatulence. He became more restless; the countenance was anxious, and the breathing very thoracic from the peritoneal pain. He complained of pain on micturition. Pulse 118, small; the tongue was clean, the skin rather hot. On the afternoon of the same day vomiting of a green bilious fluid set in; the pulse became very small and weak; the arms and hands cold; there was much thirst, and although pain was not excessive, the abdominal muscles continued tense. The bowels were scantily moved twice, the countenance was anxious, and debility was increasing. He died early on the following morning, the vomiting having continued persistent, and the restlessness increased with accompanying debility and failure of the vital powers. No post-mortem examination of the body was made. The staff-surgeon remarks:—

"In a lad of such tender years (17) one does not anticipate a

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fatal termination to result from so slight a cause, but judging from his general appearance, together with his family history (a brother and sister having died from phthisis), I have no doubt that a scrofulous habit or constitution was more instrumental in bringing about the termination than the accident itself."

In Table IV. a death from hæmatemesis appears in connection with the Britannia. It occurred in a man who, while on leave, was suddenly attacked with vomiting of blood, which proved rapidly fatal. As no post-mortem examination of the body was made, the source of the hæmorrhage can only be surmised.

A death from dysentery occurred in the person of a seaman borne on the books of the Victory, who had recently returned from China, invalided for that disease; and there was a death from diarrhœa, in the person of a stoker of the Research, who had been a frequent sufferer from irritability of the bowels, and in the previous year had had a severe attack of choleraic diarrhœa. No post-mortem examination of the body was made, but from the general history of the case, there was in all probability some amount of tubercular mesenteric disease.

Diseases of the Liver and Spleen.—There was a fractional increase in the ratio of cases coming under this head, compared with the preceding year, but the invaliding and death rates were lower. Of thirty cases of various forms of disease of the liver, four proved fatal. One of these occurred in the person of a warrant officer of the Asia, who had been in indifferent health for several years, but first came under treatment in the month of April for dyspepsia, the symptoms being, pain in the epigastrium after taking food, frequent vomiting, depression, and general debility. He improved under treatment, and was enabled for a short time to return to duty. The symptoms of disease of the liver recurred, however, with increased severity; he became very weak, greatly depressed, and rapidly lost flesh. In this condition he was permitted to go on leave, and while residing on shore all his symptoms increased, and great pain in the hepatic region set in. On the 6th of November he vomited a large quantity of blood and pus, and blood continued to be vomited until the time of his death. He rapidly sank after the bursting of the abscess, and died on the 13th of November.

A fatal case, returned as cancer of the liver, occurred in the person of a petty officer of the Canopus. He laboured under

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under a combination of diseases, however, all of a formidable character. He had been under treatment in Plymouth Hospital for dyspeptic symptoms, but appears to have so far recovered as to have been discharged to duty. He was re-admitted, however, suffering from cough, dyspnœa, and œdema of the legs. Nausea and vomiting supervened, with gastrodynia, and marked increase of hepatic dulness. There was also a loud bellows murmur with the first sound of the heart. The œdema extended, ascites supervened, and he became jaundiced, and ultimately died exhausted. On post-mortem examination of the body the cardiac orifices were found widely dilated; the heart was hypertrophied. There was a cancerous nodule in the lower lobe of the right lung; the right pleura was filled with blood. There were several schirrous nodules in the posterior border of the liver, the weight of which organ was three pounds seven ounces. The weight of the right kidney was 2¼ oz., that of the left 10 oz. The tissue in both was apparently healthy.

A warrant officer of the Excellent died from disease of the liver. For some time before his death he showed symptoms of insanity, refusing food, and occasionally becoming violent. He became extremely emaciated, the skin was deeply jaundiced, and he passed large quantities of bile per anum. After death the liver was found to be extensively diseased, but what form the degeneration took is not stated. The gall bladder, and the intestines were full of dark, tarry-looking, bile.

A warrant officer of the Wellesley, a prematurely aged man, and much debilitated, was admitted to Melville Hospital, Chatham, on the 9th of January, having been for some time previously under the care of a private practitioner. His condition from the first was extremely critical: he had constant vomiting, and rejected both food and medicine; there was very little febrile disturbance, but great prostration. He had had no rigors, and no pain was experienced on pressure over the liver; but there was great fulness in the hepatic region, and marked dulness extending to the epigastrium. At one point there was so much prominence as to give rise to the suspicion that a hepatic abscess was forming. The skin was deeply bronzed, and he had a slight short cough, with a dry brown tongue, and great thirst. The urine was deeply loaded with urates; its specific gravity 1·030. Pulse 120. During the progress of the case the vomiting continued throughout, but there was no local pain, and the

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hepatic enlargement seemed to decrease. He was chiefly supported by injections of beef-tea, whilst ice was freely given by the mouth, the bowels being relieved by purgative enemata, and derivants applied over the hepatic region. He became gradually weaker; the irritability of the stomach, although checked, was succeeded by a loathing of food of every kind, and he persistently refused to take support in any form. The skin became more deeply jaundiced, and the urine natural in quantity, but highly charged with bile pigment. The depression became typhoid, with insomnia, and he sank from exhaustion.

The foregoing history is taken from the abridged report furnished by the Deputy Inspector General* of the Hospital, who adds that

"On post-mortem examination of the body, effusion into the peritoneum to the extent of about two pints was found. The liver was enormously enlarged, and extended high up into the cavity of the chest, so as almost entirely to compress the right lung; it weighed eight pounds. The hepatic substance was softened, fatty, and broken down, particularly on the right side. The kidneys were fatty and hypertrophied, and their capsules easily separated."

Sixty-six cases of jaundice were under treatment during the year, of which two proved fatal. In the Impregnable, the training ship for boys at Devonport, eighteen cases of this disease occurred, twelve of them in the Christmas quarter of the year. The staff surgeon† of the ship says:—

"The majority of these cases were of a well-marked character, mostly preceded by general dyspeptic symptoms, want of appetite, sense of oppression in the præcordial region, irregular bowels, high-coloured urine, with more or less yellowness of conjunctivæ and skin. It was suggested by the Inspector General‡ of Plymouth Hospital, that these cases were caused by the patients surfeiting themselves with animal fats; but it was not found that the boys had means of acquiring any beyond the customary rations."

The simultaneous occurrence of a number of cases of jaundice among a ship's company has been frequently remarked, and it appears to be exceedingly difficult to account for so singular a phenomenon. It would be natural to suppose that in such cases the extraordinary perversion

* Deputy Inspector General C. A. Anderson, M.D.
† Staff Surgeon William Banks Fegen.
‡ Inspector General J. G. Stewart, M.D.

perversion of the biliary secretion must be dependent on some dietetic, climatic, or other influence sufficiently powerful to make its discovery comparatively easy; but this by no means proves to be the case; at least it must be confessed that it very rarely happens, when such an epidemic does occur, that the medical officers under whose cognizance it has come, have been able to trace its origin in any satisfactory manner. The subject is, however, an exceedingly interesting one, and most important results might be gained by the accumulation of carefully and judiciously selected *facts* in connection with such outbreaks.

Of the two cases which proved fatal, one occurred in the person of a sick-bay attendant of the Frederick William, who was placed on the sick-list on the 25th of July with symptoms indicative of derangement of the stomach and biliary secretions. The tongue was very white and there was loss of appetite with nausea. Under the treatment adopted he was somewhat better on the following day, but on the 27th he complained of severe rheumatic pains, and both ankles, and the left knee, and the right wrist became painful and swollen. For these symptoms he was now treated with colchicum and antacids, and on the 28th he expressed himself much better, but complained of great debility, and vomited some bilious matter. For this an ammoniacal and magnesian effervescent draught was given, and at 9 p. m. he expressed himself quite comfortable. At eleven he suddenly became worse, and violent and incessant bile vomitings ensued with occasional convulsions; his skin now assumed a yellow hue. On examining the heart, its action was found to be feeble and irregular, the second sound not being heard, and he experienced great faintness, and a sense of suffocation. He took a little brandy-and-water, which he vomited. Afterwards, ammonia, morphine, and æther were administered; sinapisms were applied to the chest and pit of the stomach, and hot-water bottles to the feet, which were cold. In the morning he was no better, had not slept for an instant, and the bilious vomiting continued, the stomach rejecting all food, though it was freely taken. During the night he had several convulsions, and was at times delirious; this condition was followed by a cold clammy sweat. A turpentine injection was administered, which brought away a little fæcal matter. Later in the morning he slept for about twenty minutes, being the first sleep he had had for two days. He now expressed himself greatly better and free from all pain, took support, and it

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really seemed as if a favourable change was about to take place. Convulsion after convulsion, however, again came on, and in one of these, at 11.30 a. m., he suddenly sank and expired. The surgeon* of the ship, who furnished the foregoing report, adds:—

"I imagine, from the symptoms, that death although ostensibly occasioned by bile poisoning, may also have been, in some measure, induced by heart disease."

The other fatal case occurred in the person of a Marine of the Indus, who was admitted into Plymouth Hospital, after having been for a week under treatment for jaundice, which had come on a fortnight previously, without any constitutional disturbance. On admission, the symptoms were jaundice, irritable stomach, constipation, bile both in the stools and the urine; the right hypochondrium was tympanitic; the sub-cutaneous veins of the abdomen were enlarged. He appeared to improve, became less jaundiced, and vomited less frequently, until four days after his admission, when he became more icteroid, weaker, and vomited frequently. Next day he was weak, taciturn, and more jaundiced. On the following day he complained of his sight being bad; there was slight convergent strabismus; the pulse was very weak and indistinct, and next day he was blind, nearly pulseless, and insensible. He died at 9.30 p. m. On post-mortem examination of the body, the lungs were found to be crepitant, with dark greenish coloured patches of congestion on both. The inferior surface of the liver was adherent to the transverse colon and duodenum. It was removed without the gall-bladder, which had to be dissected out of a mass of adhesions; its colour was greenish-yellow, the bile-ducts dilated, its substance friable. The gall-bladder adhered firmly to the transverse flexure of the colon. Its cavity was full of greenish pus; the opening of the cystic duct was occluded by a mass of dense, hard, fibrous structure, which was infiltrated into the coats of the gall-bladder for a considerable portion of its entirety. There was a large schirrous mass on the superior surface of the stomach, just inside, but not implicating, the pylorus. A portion of it, of about the size of a crown piece, was ulcerated, the ulcer being shreddy. Other organs were normal.

Diseases

* Surgeon C. D. Shephard.

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Diseases of the Genito-Urinary Organs.—There was a small reduction in the various ratios under this head compared with the preceding year. The reduction in the ratio of cases of primary and secondary syphilis was equal to 10·1 per 1,000 of mean force. There can be little question that this is altogether attributable to the beneficial influence of the Contagious Diseases Act, limited even as it at present is in its sphere of operation.

A fatal case of disease of the kidneys occurred in the person of a marine of the Cambridge. He first presented himself on the 28th January, with anasarca of the lower extremities, and an albuminous condition of the urine. He stated that about twelve months previously he had first perceived his feet and ankles to become swollen after standing or walking for any length of time, and that he experienced vague pains about the loins. Under treatment and careful management the symptoms with which he presented himself gradually disappeared, and he apparently regained his usual state of good health, and was discharged to duty. He applied again on the 5th of March, stating that the swelling had rather suddenly returned. The symptoms of albuminuria were now more complete and well marked; there was a puffy looking condition of the face and eyelids, a pearly appearance of the sclerotics, swollen legs and feet, pains in the back, &c.; otherwise he seemed to be in pretty good health. There was apparently no disease of the lungs or heart. The urine was dark and smoky in appearance, scanty, highly albuminous, its specific gravity, 1,010. On the following day he was discharged to Plymouth Hospital, where the œdema steadily increased, the urine becoming extremely scanty, less than one pint daily, and the abdomen became tumid and tympanitic. Punctures which had been made in the thighs became sloughy, and he died on the 10th of April. On post-mortem examination of the body, the lower limbs were found to be very œdematous, with deep discolouration at the inner side of the left thigh, and vesications at the punctures. The abdomen contained a large quantity of straw-coloured flaky fluid. The serous surface of the intestines was marked by dark patches. The kidneys were large, pale, and friable. The cortical substance was of an orange yellow colour. The liver was congested, its weight being 4 lbs. 4 oz. The lungs were adherent, the pericardium adherent, the heart normal.

Venereal Diseases.—It does not appear to be necessary to make any lengthened observations on these diseases as they

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appeared on board the different vessels composing the force. It will be more interesting to show the opinion of different medical officers on the working of the Contagious Diseases Act in connection with them.

The surgeon* of the Gladiator says :—

"It must be a matter of paramount importance not only to those immediately concerned, but the public at large, to have the utility or otherwise of recent legislation demonstrated by indisputable facts. If it be found that the disease is really controlled by prostitutes being placed under supervision and periodical inspection, the sooner the whole country derives the benefit of it the better. A comparison may fairly be instituted between those centres of disease to which the Act does not apply, and those where it is in operation. Dividing the twelve months into periods for which nosological returns are rendered, I find that in the first quarter no cases of this disease presented themselves; during this time the ship was on the coast of Ireland, and little opportunity was afforded for contracting it. The two middle quarters of the year were spent between Portsmouth and Plymouth, chiefly at the former. During this time nine men were infected; while between the 22nd of October and the 20th of December, during the greater part of which time the ship lay at Liverpool, nine cases of venereal disease were contracted. Thus in less than two months an equal amount of disease was propagated amongst the men at Liverpool, as at Portsmouth and Plymouth, where unlimited leave was given, in six. From my experience I should say that at no port in the kingdom is the application of the Act more imperatively demanded than at Liverpool. The place is a hotbed of syphilis, where the disease flourishes, and is sown broadcast over the world, and of itself is almost sufficient to counteract the good which has been accomplished elsewhere."

The surgeon of the Formidable remarks :—

"We have had ten cases of syphilis and gonorrhœa, not one of which could be clearly traced as having been contracted at Sheerness, a most satisfactory proof of the working of the Contagious Diseases Act. When are we to have it extended throughout the kingdom? In its operation I have not heard of a single case of hardship; and it is most unfortunate that the surrounding districts, not subject to the Act, should neutralise such good results."

The medical officer† in charge of the Naval Barracks at Sheerness observes :—

"During the period of this journal, primary syphilis and gonorrhœa, with their sequelæ, have furnished nearly one-fourth of the total number

* Surgeon W. J. Eames.
† Surgeon Robert Mungle.

number of cases, and about a third of the total days' sickness from each disease; but to the credit of Sheerness, and the officials employed in carrying out the purposes of the Contagious Diseases Act, only six cases (three of primary syphilis, and three of gonorrhœa) were contracted at this place. Thirty-three cases originated in London, seven at Woolwich, five at Chatham, five at Plymouth, three at Portsmouth, and solitary cases came from Harwich, Yarmouth, and various inland towns. We had several drafts of men from Her Majesty's Ship Fisgard, to which they had newly returned from long leave, and this accounts for the frequency of the cases attributed to London."

Referring to the Act, the surgeon of the Cumberland says :—

"It seems to work here very well, as the total number of days' sickness from venereal disease has been under 700; and when I add that the greater number of the cases were imported into this place, that is, the disease was contracted elsewhere, at Chatham, London, Dover, &c., China even contributing its quota of eighty-seven days, it will be apparent that Sheerness is kept very clear of this scourge to the British seamen."

The surgeon of the Asia, at Portsmouth, observes :—

"When the Contagious Diseases Act first came into operation, there was a marked decrease in the number of cases of syphilis, but during the last three months the number has nearly attained its former extent. In the first quarter of this year, ten cases were added; in the second, only six; whereas, in the last, the number reached twenty-one; the average of former quarters was about twenty-six. The increase has been attributed to the want of accommodation for the treatment of the women, and this no doubt is a cause; but I believe the chief is the vicinage of Southampton, which town is exempt from the operation of the Act. Men from Portsmouth get infected in Southampton, and women from that town come to Portsmouth often with the object of obtaining admission into the Lock Hospital, and failing in that, remain here, and probably infect many. Yet upon the whole the result of the operation of the Act for the first year, is, as far as can be judged from this ship, satisfactory. In 1866 the number of cases of primary syphilis was sixty-six; of secondary, twenty-three. In the present year the number of primary syphilitic cases is forty-nine; of secondary, twelve, so that the decrease has been very considerable."

The medical officer* of the Royal yacht Victoria and Albert, at Portsmouth, remarks :—

"The close approach to immunity from venereal disease is very satisfactory; and though this cannot be attributed to the operation of the

* Deputy Inspector General John M. Minter, M.D.

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the Contagious Diseases Act, inasmuch as it has never been in efficient operation here, still there is evidence in this place to show that its limited working has proved beneficial to the service, and has much ameliorated the sufferings of the poor degraded outcasts of society."

The surgeon of the Duke of Wellington, at Portsmouth, says:—

"Primary syphilis numbers seventy-six cases, sixteen of which were imported from Southampton, London, &c., and sixty contracted in and around the port. The entire number would give a ratio of 148·7 per 1,000 of mean force; deducting the cases imported, the ratio will be 111·7 per 1,000, or in a force averaging 511 men for the year, the men infected at the port would be 1·1 per week, or about ten men in nine weeks. In a stationary ship I do not think that excessive; still even that might be checked by extra vigilance, as was shown by my representation in January to the authorities, when, from five cases weekly, it disappeared altogether for two months."

Referring to Plymouth, the surgeon* of the Liffey remarks:—

"I observed a notable decrease of venereal disease. Two years and a half ago I fitted out at this port in Her Majesty's ship Narcissus; during the month that vessel remained in harbour, before sailing for her station, I find on reference to my notes that nineteen patients were under treatment for venereal diseases. The same period in this ship, counting from the 10th of August, only showed nine admitted to the list. The number of men on board the Narcissus was for that period about 8 per cent. more than on board the Liffey. This shows how much good the Contagious Diseases Act has done, and how much more it might have effected if more liberal means had been adopted to supply hospital accommodation, with medical inspection and treatment. Many women known to be infected are now obliged to be left on the town for want of room in the hospital."

And the staff surgeon† of the Indus at the same place says:—

". . . it may be stated that a gradual reduction in the prevalence, and a perceptible mildness of type in the character, of these affections have been evidenced by the year's nosological summary of Her Majesty's Ship Indus, to which result the supervision now exercised over prostitutes at this port has doubtless conduced very considerably."

Much more evidence to the same effect might be given, but

* Surgeon F. W. Blake, M.D.
† Staff surgeon A. W. W. Babington, M.D.

but enough has been advanced to show the favourable view taken of the working of the Contagious Diseases Act by the medical officers generally, and the great desire that is evinced by all to see its operation much extended.

Wounds and Injuries.—Nine men sustained fatal fracture of the skull; six by falling from aloft; one by a blow on the head with a water tank; and in two instances the cause of the injury is not stated. One man died of tetanus, resulting from a compound fracture of the leg.

Twenty-one men were drowned; six by being capsized in boats; three while bathing; seven by falling overboard; one by falling into a dock; and in four instances the cause of drowning is not given.

A man committed suicide by jumping overboard in a fit of insanity; and two officers were poisoned by narcotics, whether accidentally or not is not stated. A man who was under treatment for poisoning by lead, died from what appears to have been disease of the heart.

The total number of deaths was 161, which is in the ratio of 7·4 per 1,000 of mean force, being a reduction compared with the preceding year equal to ·6 per 1,000. The mortality from disease only was in the ratio of 5·8 per 1,000.

Invalided.—Three persons were invalided for the sequelæ of fevers, including the exanthemata; fifty-seven for diseases of the brain and nervous system, twenty-one of whom were epileptic; 108 for diseases of the respiratory organs, eighty-four of whom were phthisical; fifty-four for diseases of the heart and bloodvessels; three for diseases of the alimentary canal; two for diseases of the liver; twenty-seven for diseases of the genito-urinary organs, almost all of venereal origin; thirty-six for rheumatism; two for gout; three for diseases of the bones and joints; nineteeen for diseases of the special senses; forty-six for diseases of the skin and cellular tissue; sixteen for diseases not classed; twenty-seven for the results of wounds and injuries of various kinds; twenty-two for hernia; and one for the effects of poisoning. The total number invalided was 426, which is in the ratio of 19·7 per 1,000 of mean force, being a reduction compared with the preceding year equal to 6·4 per 1,000.

TABLE, No. 1.

SHOWING the Number of CASES of all DISEASES and INJURIES, and the Number INVALIDED and DEAD, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Continued and Remittent Fever	234	10·8	1	- -	15	·6
Intermittent Fever	128	5·9	1	- -	1	— —
Small Pox	30	1·3	—	—	—	—
Measles	106	4·9	- -	- -	1	—
Scarlatina	22	1·	1	- -	2	—
Vaccinia	15	·6	—	—	—	—
Varicella	12	·5	—	—	—	—
Disease of the Brain	9	·4	8	·3	4	·1
Apoplexy	6	·2	2	- -	3	·1
Epilepsy	45	2·	21	·9	—	—
Paralysis	29	1·3	13	·6	2	—
Insanity	24	1·1	6	·2	—	—
Delirium Tremens	40	1·8	—	—	—	—
Neuralgia	46	2·1	1	—	—	—
Vertigo	26	1·2	6	·2	—	—
Inflammation of the Lungs and Pleura	394	18·2	20	·9	19	·8
Phthisis and Hæmoptysis	160	7·4	·84	3·8	40	1·8
Influenza and Catarrh	2,475	114·5	—	—	—	—
Cynanche	850	39·3	2	—	—	—
Asthma	26	1·2	2	—	—	—
Mumps	72	3·3	—	—	—	—
Disease of the Heart, Functional and Organic	105	4·8	44	2·	14	·6
Hæmorrhoids	52	2·4	1	—	—	—
Varix	17	·7	9	·4	—	—
Aneurism	4	·1	- -	- -	1	—
Disease of the Stomach and Bowels	15	·6	1	- -	5	·2
Dysentery	11	·5	- -	- -	1	—
Diarrhœa	604	27·9	2	- -	1	—
Cholera	2	—	—	—	—	—
Constipation and Colic	186	8·6	—	—	—	—
Disease of the Liver	30	1·3	2	- -	4	·1
Jaundice	66	3·	- -	- -	2	—
Splenitis	2	—	—	—	—	—

TABLE, No. 1.—Showing the Number of Cases of all Diseases, &c.—*continued.*

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	34	1·5	3	·1	1	—
Syphilis, Primary	953	44·1	7	·3	—	—
Syphilis, Secondary	322	14·9	10	·4	—	—
Gonorrhœa	481	22·2	—	—	—	—
Orchitis	373	17·2	1	—	—	—
Stricture	67	3·1	3	·1	—	—
Incontinence of Urine, &c.	7	·3	3	·1	—	—
Rheumatism	1,119	51·8	36	1·6	1	—
Gout	38	1·7	2	—	—	—
Disease of the Bones and Joints	66	3·	3	·1	—	—
Inflammation of the Eyes	244	11·2	6	·2	—	—
Amaurosis and Cataract	11	·5	2	—	—	—
Otitis and Deafness	56	2·5	11	·5	—	—
Erysipelas	52	2·4	—	—	—	—
Scrofula	22	1·	8	·3	—	—
Bubo (*Symp.*)	217	10·	—	—	—	—
Phlegmon and Abscess	2,614	121·	1	—	—	—
Ulcer	1,387	64·2	30	1·3	—	—
Psora	230	10·6	—	—	—	—
Eruptions, &c.	334	15·4	7	·3	—	—
Dyspepsia and Debility	767	35·5	15	·6	—	—
Dropsy	20	·9	—	—	5	·2
Worms	17	·7	—	—	—	—
Headache	62	2·8	1	—	—	—
Purpura	6	·2	—	—	—	—
Pyæmia	1	—	—	—	2	—
Cancer	2	—	—	—	2	—
Wounds and Injuries	3,402	157·5	27	1·2	10	·4
Burns and Scalds	150	6·9	—	—	—	—
Hernia	39	1·8	22	1·	—	—
Drowned	—	—	—	—	21	·9
Poisoning	12	·5	1	—	3	·1
Asphyxia	2	—	—	—	—	—
Suicide	—	—	—	—	1	—
Submersion	1	—	—	—	—	—
TOTAL	18,951	877·3	426	19·7	161	7·4

TABLE, No. 2.

SHOWING the Number of DAYS' SICKNESS from each DISEASE and from INJURIES, the Average Number of Men Sick Daily, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Continued and Remittent Fever	1,221	3,606	4,827	13·2	·6
Intermittent Fever	821	383	1,204	3·2	·1
Small-pox	247	779	1,026	2·8	·1
Measles	406	1,233	1,639	4·4	·2
Scarlatina	42	236	278	·7	—
Varicella	28	123	151	·4	—
Vaccinia	89	-	89	·2	—
Disease of the Brain	82	264	346	·9	—
Apoplexy	35	114	149	·4	—
Epilepsy	419	688	1,107	3·	·1
Paralysis	169	1,695	1,864	5·1	·2
Insanity	191	1,035	1,226	3·3	·1
Delirium Tremens	142	231	373	1·	—
Neuralgia	286	156	442	1·2	—
Vertigo	125	488	613	1·6	—
Inflammation of the Lungs and Pleura	4,516	8,356	12,872	35·2	1·6
Phthisis and Hæmoptysis	1,789	7,590	9,379	25·6	1·1
Influenza and Catarrh	13,836	1,843	15,679	42·9	1·9
Cynanche	5,038	893	5,931	16·2	·7
Asthma	209	192	401	1·	—
Mumps	153	-	153	·4	—
Disease of the Heart, Functional, and Organic	881	2,256	3,137	8·5	·3
Hæmorrhoids	571	33	604	1·6	—
Varix	179	173	352	·9	—
Aneurism	6	208	214	·5	—
Disease of the Stomach and Bowels	176	315	491	1·3	—
Dysentery	109	228	337	·9	—
Diarrhœa	2,369	641	3,010	8·2	·3
Cholera	3	7	10	—	—
Constipation and Colic	739	84	823	2·2	·1
Disease of the Liver	320	545	865	2·3	·1
Jaundice	487	492	979	2·6	·1
Splenitis	11	67	78	·2	—

TABLE, No. 2.—Showing the Number of Days' Sickness from each Disease, &c.—*cont^d.*

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	366	629	995	2·7	·1
Syphilis, Primary	15,233	28,209	43,442	119·	5·5
Syphilis, Secondary	3,158	7,504	10,662	29·2	1·3
Gonorrhœa	5,808	2,615	8,423	23·	1·
Orchitis	4,055	3,141	7,196	19·7	—
Stricture	405	2,004	2,409	6·6	·3
Incontinence of Urine, &c.	35	129	164	·4	—
Rheumatism	9,906	10,624	20,530	56·2	2·6
Gout	348	274	622	1·7	—
Disease of the Bones and Joints	821	1,513	2,334	6·3	·2
Inflammation of the Eyes	2,261	1,898	4,159	11·3	·5
Amaurosis and Cataract	261	137	398	1·	—
Otitis and Deafness	360	442	802	2·1	—
Erysipelas	460	542	1,002	2·7	·1
Scrofula	270	873	1,143	3·1	·1
Bubo (*Symp.*)	3,757	1,733	5,490	15·	·6
Phlegmon and Abscess	20,386	4,968	25,354	69·4	3·2
Ulcer	18,055	11,204	29,259	80·1	3·7
Psora	1,220	834	2,054	5·6	·2
Eruptions, &c.	3,845	3,637	7,482	20·4	·9
Dyspepsia and Debility	4,271	3,020	7,291	19·9	·9
Dropsy	135	354	489	1·3	—
Worms	84	49	133	·3	—
Headache	438	254	692	1·8	—
Pyæmia	20	-	20	—	—
Purpura	92	130	222	·6	—
Cancer	42	15	57	·1	—
Wounds and Injuries	32,514	9,088	41,602	113·9	5·2
Burns and Scalds	1,640	192	1,832	5·	·2
Hernia	304	101	405	1·1	—
Poisoning	29	6	35	—	—
Submersion	2	-	2	—	—
Asphyxia	7	-	7	—	—
TOTAL	166,283	131,073	297,356	814·6	37·7

TABLE, No 3. - - - - - - -

SHOWING the Number INVALIDED - - - - - - -

CAUSE OF INVALIDING.	Achilles.	Asia.	Bellerophon.	Black Prince.	Boscawen.	Caledonia.	Cambridge.	Canopus.	Castor.	Cumberland.	Dædalus.	Dasher.	Dauntless.	Dee.	Donegal.	Duke of Wellington.	Duncan.	Durham.	Excellent.	Fisgard.	Formidable.	Fox.	Frederick William.	Ganges.
Continued and Remittent Fever	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Intermittent Fever	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Scarlatina	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Inflammation of the Brain	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Insanity	-	-	-	-	-	-	-	2	-	1	-	-	1	-	-	-	-	-	-	-	-	-	1	-
Apoplexy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Epilepsy	-	-	-	-	-	-	-	3	-	3	-	-	2	-	-	-	-	-	1	-	-	-	-	-
Paralysis	1	2	-	-	-	-	1	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Neuralgia	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vertigo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Inflammation of the Lungs and Pleura	1	2	-	-	-	-	-	3	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Phthisis and Hæmoptysis	1	2	3	-	-	3	2	6	-	2	1	-	1	-	4	4	3	1	13	1	1	-	2	2
Cynanche	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asthma	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Disease of the Heart, Functional and Organic	1	1	1	1	-	1	1	4	-	-	-	1	-	-	-	1	-	-	3	1	-	1	1	-
Hæmorrhoids	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Varix	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	1	1	-	-	-
Inflammation of the Stomach and Bowels	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Diarrhœa	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Disease of the Liver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Inflammation of the Kidneys and Bladder	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Syphilis, Primary	-	1	-	1	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	1	-
Syphilis, Secondary	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	1	-	-	-	-	-
Orchitis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Stricture	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Incontinence of Urine, &c.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rheumatism	1	4	1	-	-	-	-	2	-	-	-	-	1	-	-	3	-	-	-	1	-	-	2	1
Gout	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Disease of the Bones and Joints	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Inflammation of the Eyes	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-	1	1	-	-	-	-
Amaurosis and Cataract	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Otitis and Deafness	-	1	-	-	-	-	-	2	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-
Scrofula	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Abscess	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ulcer	-	-	-	-	-	-	-	3	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	5
Eruptions, &c.	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Dyspepsia and Debility	-	1	1	-	-	-	-	1	2	-	-	-	-	-	1	-	-	-	2	-	-	-	-	1
Headache, &c.	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wounds	3	1	1	1	2	-	-	-	-	1	-	-	1	-	-	1	-	-	2	1	1	-	-	-
Hernia	-	-	1	-	-	1	2	-	-	-	-	-	-	1	-	1	-	-	6	1	-	-	-	1
Poisoning by Lead	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
TOTAL	11	19	13	4	4	5	7	29	2	11	1	2	10	1	6	19	3	1	33	7	3	1	8	12

TABLE, No. 3.

from each SHIP on the HOME STATION.

Gladiator.	Hector.	Implacable.	Impregnable.	Indus.	Irresistible.	Jackal.	Liffey.	Lion.	Liverpool.	Lizard.	Lord Clyde.	Medusa.	Minotaur.	Niobe.	Orwell.	Osborne.	Pallas.	Pembroke.	Research.	Revenge.	Royal George.	St. George.	St. Vincent.	Squirrel.	Trafalgar.	Victoria and Albert.	Victory.	Virago.	Watervitch.	Wellesey.	Wivern.	TOTAL.
–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	1	4	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	–	8
–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1	–	–	1	–	–	–	–	–	–	6
–	–	1	1	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	1	1	1	–	1	–	–	–	–	1	–	1	1	–	–	–	–	–	–	–	2	2	2	–	–	1	–	–	–	–	21
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	2	–	–	–	–	–	–	–	–	–	13
–	–	1	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	1	1	–	–	–	–	6
–	–	1	3	3	1	–	–	–	–	1	–	1	–	1	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	20
–	2	1	3	4	3	–	–	1	1	1	1	–	1	–	–	1	–	2	2	1	3	1	1	–	–	1	–	–	–	–	–	84
–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	1	4	6	3	1	–	1	–	–	–	–	–	1	1	–	–	1	1	–	1	–	–	3	–	–	–	1	–	–	1	–	4
–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1	–	1	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	9
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	1	–	–	–	–	–	–	–	–	7
1	–	–	–	–	1	–	1	–	–	–	–	–	–	–	–	–	1	–	–	–	–	1	1	–	–	–	–	–	1	–	–	10
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	1	–	–	–	1	–	–	–	–	–	3
1	–	–	2	2	2	–	–	1	–	–	4	–	2	–	–	–	1	–	–	–	1	1	2	–	–	–	–	–	–	1	–	36
–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	6
–	–	1	2	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	1	1	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	1	–	–	–	–	–	11
–	–	–	4	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	8
–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	3	15	–	–	–	–	–	–	–	1	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	30
–	–	2	1	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	7
–	–	–	1	1	1	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1	–	1	–	–	–	15
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	1	2	1	–	–	–	–	–	1	–	–	2	1	–	–	–	–	–	–	–	–	2	–	–	–	–	–	1	1	–	27
–	–	1	1	1	2	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	22
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
2	3	17	51	18	12	1	3	4	2	2	9	1	11	5	1	1	6	3	3	5	4	11	19	2	1	1	8	1	1	2	4	426

TABLE, No. 4. - - - - - - - -

SHOWING the Number of DEATHS in each - - - -

CAUSE of DEATH.	Achilles.	Asia.	Bellerophon.	Boscawen.	Britannia.	Caledonia.	Cambridge.	Canopus.	Cumberland.	Dauntless.	Dee.	Donegal.	Duke of Wellington.	Duncan.	Durham.	Excellent.	Fisgard.	Fox.	Frederick William.
Continued and Remittent Fever	–	–	1	–	1	–	–	–	–	–	–	–	2	–	–	3	–	–	–
Intermittent Fever	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–
Measles	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Scarlatina	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1	–	–	–
Inflammation of the Brain	–		–	–	–	–	–	–	–	–	–	–	–	1	–	1	–	–	–
Apoplexy	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–
Paralysis	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–
Inflammation of the Lungs and Pleura	–	–	–	1	–	1	1	–	4	–	1	–	1	–	–	1	2	–	–
Phthisis	–	2	–	–	2	1	–	1	1	–	–	2	–	2	–	5	1	1	1
Disease of the Heart	–	3	2	1	–	–	–	–	1	–	–	1	–	–	–	2	–	–	–
Aneurism	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Disease of Stomach and Bowels	–	1	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–
Hæmatemesis	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Diarrhœa	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dysentery	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Disease of the Liver	–	1	–	–	–	–	–	1	–	–	–	–	–	–	–	1	–	–	–
Jaundice	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Albuminuria	–	–	–	–	–	–	1	–	–	–	–	–	–		–	–	–	–	–
Rheumatism	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dropsy	–	–	–	–	–	–	–	–	2	–	–	1	–	–	–	1	–	–	–
Pyæmia	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Cancer	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Wounds and Injuries	–	–	–	1	–	–	1	1	1	–	–	–	1	–	–	–	–	–	–
Drowned	1	1	–	2	–	–	2	–	3	–	–	–	–	–	–	–	–	–	2
Suicide	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–
Poisoning	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–	–
TOTAL	1	11	3	5	4	2	5	5	12	1	1	4	4	3	1	17	4	2	4

TABLE, No. 4.

Ship employed on the HOME STATION.

Ganges.	Helicon.	Implacable.	Impregnable.	Indus.	Irresistible.	Liffey.	Lion.	Lizard.	Lord Clyde.	Marines, Ireland.	Minotaur.	Nankin.	Pallas.	President.	Research.	Revenge.	Royal Adelaide.	Royal George.	St. George.	St. Vincent.	Trafalgar.	Victoria and Albert.	Victory.	Virago.	Warrior.	Wellesley.	Winchester.	Wivern.	TOTAL.
–	–	–	1	–	–	–	1	–	1	–	–	–	–	–	–	–	1	1	1	1	–	–	–	–	–	–	–	1	15
–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	1	–	–	1	–	–	–	–	1	–	–	–	–	–	–	–	–	1	–	–	–	–	1	–	–	–	–	–	–	4
–	1	2	2	2	1	–	1	–	–	1	2	1	–	1	1	–	1	1	–	1	1	–	2	–	1	1	–	1	–	19
–	–	–	1	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	14
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–	4
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	1	–	–	–	–	–	1
–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	4
–	–	–	2	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	5
1	1	–	–	–	–	1	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	10
–	–	1	–	1	–	–	1	1	2	–	–	–	1	–	–	1	–	–	1	1	–	–	–	–	–	–	–	–	21
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3
1	3	3	7	8	2	2	3	1	4	1	4	1	1	1	2	3	2	4	2	4	1	1	5	1	2	1	1	1	161

Table, No. 5.

Showing the Names of the Ships; the Average Complements, &c.; the Number of Cases; the Total Number of Days' Sickness on Board; the Average Number of Men Sick Daily, in each Ship, and the Number Discharged to Hospital.

C. Commissioned. D. Returns defective. P. O. Paid off. S. C. Station changed.

Rate, &c.	Names of Ships.	Where Commissioned.	When Commissioned.	Number of Guns.	Tonnage.	Horse Power.	Period.	Average Complements.	Average Complements corrected for Time.	Number of Cases of Disease and Injury.	Number of Days' Sickness on Board.	Average Number of Men Sick Daily for Twelve Months.	Ratio per 1,000 of Average Force of each Ship.	Number Discharged to Hospital.
Ironclad	Achilles	Chatham	15 Sept. 1864	26	6,121	S.1,250	Year	705	705	772	6,676	18·2	25·8	83
	Bellerophon	Portsmouth	26 Mar. 1866	14	4,270	S.1,000	Year	500	500	695	5,255	14·3	28·6	135
	Black Prince P. O.	Queenstown	19 May 1866	41	6,109	S.1,250	1 Jan. to 30 June	585	290	152	1,431	3·9	13·4	19
	Caledonia S. C.	Devonport	27 April 1865	30	4,125	S.1,000	1 Jan. to 27 May	630	260	358	4,151	11·3	43·4	49
	Hector P. O.	Portsmouth	13 Jan. 1864	20	4,089	S. 800	1 Jan. to 19 Mar.	500	100	79	728	1·9	19·	12
	Lord Clyde S. C.	Devonport	1 June 1866	24	4,067	S.1,000	1 Jan. to 30 Sept.	590	440	534	5,893	16·1	36·5	57
	Minotaur C.	Portsmouth	4 April 1867	34	6,621	S.1,350	14 April to 31 Dec.	675	480	451	5,032	13·7	28·5	75
	Pallas	Sheerness	6 Mar. 1866	6	2,372	S. 600	Year	300	300	389	4,201	11·5	38·3	43
	Research	Devonport	11 Mar. 1864	4	1,253	S. 200	Year	150	150	146	1,800	4·9	32·6	7
	Viper C.	Sheerness	18 June 1867	2	737	S. 160	1 July to 31 Dec.	85	40	58	411	1·1	27·5	17
	Vixen P. O.	Woolwich	4 Oct. 1866	2	754	S. 160	1 Jan. to 25 Jan.	80	5	22	153	·4	80·	4
	Warrior C.	Portsmouth	1 July 1867	32	6,109	S.1,250	1 July to 31 Dec.	600	300	567	6,174	16·9	56·3	29
Hydraulic Gunboat Turret	Waterwitch C.	Woolwich	26 June 1867	2	778	160	1 July to 31 Dec.	85	40	38	167	·4	10·	11
	Wivern	Portsmouth	28 Sept. 1865	4	1,899	S. 350	Year	150	150	178	1,706	4·6	30·6	24
Fourth Rate	Liffey C.	Devonport	27 July 1867	30	2,654	S. 600	10 Aug. to 31 Dec.	415	170	344	2,904	7·9	46·4	35
	Liverpool P. O.	Devonport	30 April 1863	39	2,656	S. 600	1 Jan. to 10 Aug.	550	335	438	3,273	8·9	26·5	8
	Mersey C.	Portsmouth	25 July 1867	36	3,733	S.1,000	25 July to 31 Dec.	495	210	158	1,412	3·8	18·	24
Sixth Rate	Gladiator	Devonport	16 Mar. 1864	6	1,210	P. 430	Year	200	200	280	2,296	6·2	31·	11
Sloop	Niobe C.	Woolwich	26 June 1867	4	1,083	S. 300	3 Mar. to 30 June	140	50	63	567	1·5	30·	11
	Virago S. C.	Sheerness	1 Dec. 1866	6	1,059	P. 220	1 Jan. to 30 June	195	90	164	1,272	3·4	37·7	23
Stationary Ship	Asia	Portsmouth	1 Jan. 1867	–	2,289	–	Year	1,545	1,545	574	5,084	13·9	8·9	107
	Cambridge	Devonport	1 Jan. 1867	78	2,139	–	Year	800	800	339	2,220	6·	7·5	75
	Canopus	Devonport	1 April 1863	8	2,257	–	Year	440	440	468	2,724	7·4	16·8	149
	Cumberland and Sheerness Naval Barracks	Sheerness	1 Jan. 1864	24	2,214	–	Year	900	900	803	9,046	24·7	27·4	79
	Duke of Wellington	Portsmouth	1 May 1863	49	3,771	S. 700	Year	510	510	702	3,792	10·3	20·1	128
	Excellent	Portsmouth	1 Jan. 1866	–	2,311	–	Year	1,195	1,195	1,054	5,935	16·2	13·5	262
	Fisgard	Woolwich	1 Jan. 1863	42	1,069	–	Year	330	330	280	1,428	3·9	11·8	113
	Formidable	Sheerness	1 Jan. 1865	26	2,289	–	Year	245	245	163	1,159	3·1	12·6	11
	Indus	Devonport	1 Jan. 1864	–	2,098	–	Year	940	940	559	5,608	15·3	16·2	108

	Nankin - - - C.	Pembroke -	1 July 1867	-	2,049	-	1 July to 31 Dec.	70	35	15	343	·9	25·7	1
	Royal Adelaide - - -	Devonport -	1 Jan. 1867	26	2,446	-	Year - - -	330	330	112	1,367	3·7	11·2	23
	Saturn - - P. O.	Pembroke -	1 Jan. 1863	-	1,616	-	1 Jan. to 30 June	65	30	16	308	·8	26·6	-
	Victory - - - -	Portsmouth	1 Jan. 1867	12	2,161	-	Year - - -	650	650	247	1,698	4·6	7·	84
	Wellesey - - - -	Chatham -	1 Jan. 1866	72	1,746	-	Year - - -	150	150	101	1,171	3·2	21·3	11
Drill Ship - -	Brilliant - - - -	Woolwich -	1 April 1862	16	954	-	Year - - -	30	30	17	86	·2	6·6	2
	Castor - - - -	Chatham -	1 April 1862	22	1,293	-	Year - - -	50	50	50	548	1·5	30·	-
	Dædalus - - - -	Devonport -	1 April 1862	16	1,082	-	Year - - -	50	50	42	594	1·6	32·	3
	Durham (late Active) - -	Chatham -	8 May 1863	20	1,627	-	Year - - -	35	35	27	275	·7	20·	-
	Eagle - - - - -	Liverpool -	1 July 1862	16	1,723	-	Year - - -	35	35	84	550	1·5	42·8	4
	President - - - -	Woolwich -	1 April 1862	16	1,537	-	Year - - -	40	40	27	181	·4	10·	-
	Trincomalee - - - -	Chatham -	1 April 1862	16	1,066	-	Year - - -	30	30	22	258	·7	23·3	-
	Winchester - - - -	Liverpool -	1 July 1862	12	652	-	Year - - -	35	35	35	362	·9	25·7	1
Coast Guard Ship	Dauntless - - - -	Sheerness -	1 April 1864	31	1,575	S. 580	Year - - -	265	265	181	1,903	5·2	19·6	13
	Donegal - - - -	Devonport -	1 Sept. 1864	81	3,245	S. 800	Year - - -	370	370	461	5,896	16·1	43·5	45
	Duncan - - - C.	Sheerness -	June 1867	81	3,727	S. 800	16 June to 31 Dec.	510	250	124	2,072	5·6	22·4	7
	Frederick William - -	Portsmouth	1 July 1864	74	3,241	S. 500	Year - - -	430	430	203	2,926	8·	18·6	-
	Irresistible - - - -	Sheerness -	1 April 1864	60	2,642	S. 400	Year - - -	320	320	177	2,673	7·3	22·8	32
	Lion - - - - -	Devonport -	1 July 1864	60	2,611	S. 400	Year - - -	350	350	378	4,194	11·4	32·5	17
	Pembroke - - - -	Sheerness -	1 Mar. 1858	25	1,758	S. 200	Year - - -	175	175	257	2,209	6·	34·2	17
	Revenge - - - -	Devonport -	1 Sept. 1865	73	3,322	S. 800	Year - - -	375	375	224	2,610	7·1	18·9	15
	Royal George - - -	Devonport -	1 April 1864	72	2,616	S. 400	Year - - -	300	300	599	5,518	15·1	50·3	7
	St. George - - - -	Devonport -	10 Feb. 1864	72	2,864	S. 500	Year - - -	300	300	183	2,726	7·4	24·6	15
	Trafalgar - - P. O.	Sheerness -	1 Mar. 1864	72	2,900	S. 500	1 Jan. to 15 June	430	200	80	1,496	4·	20·	2
	Trafalgar - - - C.	Sheerness -	18 Nov. 1867	72	2,900	S. 500	20 Nov. to 31 Dec.	305	35	50	375	1·	28·5	5
Training Ship -	Boscawen - - - -	Portland -	1 Jan. 1867	20	2,213	-	Year - - -	485	485	234	3,090	8·4	17·3	31
	Britannia (for Cadets) -	Portsmouth	1 Jan. 1864	8	2,616	-	Year - - -	405	405	354	1,172	4·8	11·8	97
	Ganges - - - -	Devonport -	1 Jan. 1866	20	2,285	-	Year - - -	530	530	791	7,511	20·5	38·6	44
	Implacable - - - -	Devonport -	1 Jan. 1865	18	1,882	-	Year - - -	500	500	378	2,341	6·4	12·3	134
	Impregnable - - - -	Devonport -	1 Jan. 1867	78	2,406	-	Year - - -	800	800	600	4,047	11·	13·7	182
	St. Vincent - - - -	Portsmouth	1 Jan. 1867	26	2,612	-	Year - - -	750	750	516	4,143	11·3	15·	87
Steam Vessel -	Dasher - - - -	Jersey - -	1 Jan. 1867	2	260	P. 100	Year - - -	260	260	183	1,456	3·9	15·	15
	Helicon - - - -	Portsmouth	16 Sept. 1865	2	837	P. 250	Year - - -	65	65	86	412	1·1	16·9	15
	Jackal - - - -	Devonport -	9 Feb. 1864	4	340	P. 150	Year - - -	60	60	38	505	1·3	21·6	5
	Lizard - - - D.	- - -	- - -	3	340	P. 150	Year - - -	45	40	51	383	1·	25·	5
	Medusa - - - -	Sheerness -	1 Sept. 1863	-	889	P. 312	Year - - -	60	60	82	600	1·6	26·6	16
Yacht - - -	Osborne - - - -	Portsmouth	21 Jan. 1865	2	1,034	P. 430	Year - - -	80	80	82	541	1·4	17·5	7
	Victoria and Albert - -	Portsmouth	1 Jan. 1865	2	2,345	P. 600	Year - - -	185	185	99	795	2·1	11·3	2
Store Ship - -	Dee - - - - -	Woolwich -	12 June 1863	1	704	P. 220	Year - - -	70	70	56	364	·9	12·8	5
	Fox - - - - -	Woolwich -	1 Jan. 1866	2	1,131	S. 200	Year - - -	100	100	188	1,487	4·	40·	4
Training Brig -	Ferret - - - -	- - -	- - -	8	358	-	Year - - -	80	80	65	696	1·9	23·7	5
	Liberty - - - D.	- - -	- - -	12	428	-	Year - - -	125	120	113	807	2·2	18·3	21
	Martin - - - D.	- - -	- - -	10	481	-	Year - - -	130	100	61	585	1·6	16·	10
	Sealark - - - -	- - -	- - -	8	319	-	Year - - -	80	80	91	655	1·7	21·2	15
	Squirrel - - - D.	- - -	- - -	10	428	-	Year - - -	125	120	115	516	1·4	11·6	18
Gunboat - -	Orwell - - - -	Portsmouth	18 June 1867	2	268	S. 60	22 June to 31 Dec.	40	20	33	203	·5	25·	6
Marine Detachment, Ireland - - - -		- - -	- - -	-	-	-	11 Mar. to 7 June	480	100	135	1,191	3·2	32·	16

TABLE, No. 6. - - - - - - - - -

SHOWING the Number of CASES of all DISEASES and - - - - - -

DISEASE OR INJURY.	Achilles.	Asia.	Bellerophon.	Black Prince.	Boscawen.	Brilliant.	Britannia.	Caledonia.	Cambridge.	Canopus.	Castor.	Cumberland and Royal Naval Barracks.	Dædalus.	Dasher.	Dauntless.
Continued and Remittent Fever	2	-	30	-	-	-	3	2	3	6	3	5	-	4	-
Intermittent Fever - - -	1	4	3	-	2	-	-	-	-	4	-	43	2	1	-
Small Pox - - - - - -	-	-	-	-	-	-	-	-	-	1	-	12	-	1	-
Vaccinia - - - - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Scarlatina - - - - - -	-	-	-	-	-	-	1	-	-	-	-	-	-	5	-
Varicella - - - - - -	-	-	-	-	-	-	10	-	-	-	-	-	-	-	1
Measles - - - - - -	1	2	-	-	28	-	7	-	-	4	-	-	-	-	-
Disease of the Brain - - -	-	1	-	-	-	-	-	-	-	-	-	1	-	-	1
Apoplexy - - - - - -	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Epilepsy - - - - - -	-	3	-	-	-	-	4	-	-	3	1	3	-	-	2
Paralysis - - - - - -	1	3	-	-	-	-	-	1	1	3	-	3	-	-	-
Insanity - - - - - -	-	-	-	-	-	-	-	-	2	3	-	3	-	-	-
Delirium Tremens - - -	-	7	-	-	1	-	-	2	2	2	-	-	-	-	-
Neuralgia - - - - - -	-	1	2	-	-	-	2	1	4	-	-	5	-	3	1
Vertigo - - - - - -	1	-	2	-	2	-	-	-	-	4	-	-	-	-	2
Inflammation of the Lungs and Pleura - - - - -	8	9	13	3	11	-	3	16	-	35	-	22	2	8	1
Phthisis and Hæmoptysis - -	4	8	3	2	1	-	1	4	11	4	-	7	1	-	-
Influenza and Catarrh - -	83	68	65	18	44	7	41	76	4	68	6	77	10	15	15
Cynanche - - - - - -	42	16	37	1	17	-	20	7	54	21	1	41	4	2	7
Asthma - - - - - -	-	1	-	-	-	-	4	-	8	-	-	1	3	-	-
Mumps - - - - - -	4	-	1	-	-	-	56	-	-	-	-	-	-	-	-
Disease of the Heart, Functional and Organic - - - -	1	5	4	3	-	-	1	1	2	5	-	5	-	-	1
Aneurism - - - - - -	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-
Hæmorrhoids - - - - -	1	5	-	-	-	-	-	-	1	-	-	6	-	1	-
Varix - - - - - -	1	-	-	-	-	-	-	-	-	1	-	1	-	-	-
Inflammation of the Stomach and Bowels - - - - -	-	1	-	-	1	-	2	-	-	1	-	-	-	-	-
Cholera - - - - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dysentery - - - - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diarrhœa - - - - - -	19	21	31	3	2	1	4	7	6	12	3	23	-	4	16
Constipation and Colic - -	6	12	2	2	-	-	21	-	2	1	1	-	1	2	4
Inflammation of the Liver -	-	1	-	-	-	-	2	1	-	-	-	3	-	-	1
Jaundice - - - - - -	3	1	3	-	2	-	-	-	3	1	-	-	-	1	-
Splenitis - - - - - -	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Inflammation of the Bladder and Kidneys - - - - -	1	1	-	-	-	-	-	-	3	-	-	3	-	-	2
Syphilis, Primary - - -	35	49	31	5	1	-	2	42	22	26	-	59	-	1	17
Syphilis, Secondary - - -	18	12	33	-	-	-	-	2	7	4	-	12	-	1	2
Gonorrhœa - - - - -	17	32	5	5	1	-	1	7	12	18	-	47	-	1	11
Orchitis - - - - - -	16	11	24	1	3	-	4	13	10	6	-	25	-	1	5
Stricture of the Urethra - -	1	13	6	-	-	-	-	1	2	2	-	-	1	1	-
Incontinence of Urine, &c. -	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-
Rheumatism - - - - -	28	36	16	8	8	1	6	10	31	22	13	52	5	12	25
Gout - - - - - - -	-	11	-	1	-	-	-	-	1	2	1	4	-	-	1
Disease of the Bones and Joints -	1	2	-	-	-	-	-	-	3	4	-	2	1	-	1
Inflammation of the Eyes - -	7	10	4	-	11	-	5	13	1	5	2	17	2	-	2
Amaurosis and Cataract - -	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1
Otitis and Deafness - - -	1	1	2	1	-	-	-	1	4	1	1	2	-	-	-
Erysipelas - - - - - -	1	3	-	2	-	-	-	1	-	2	-	-	-	-	-
Scrofula - - - - - -	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Bubo (*Symp.*) - - - -	25	8	-	2	-	-	-	-	-	2	-	-	-	-	-
Phlegmon and Abscess - -	97	57	114	41	21	5	2	1	7	5	-	11	-	2	7
Ulcer - - - - - - -	49	26	51	14	23	-	57	56	34	47	4	68	2	38	12
Psora - - - - - - -	10	15	5	1	2	-	12	31	12	42	3	25	-	14	7
Eruptions, &c. - - - -	9	6	5	1	9	-	6	-	2	11	-	4	-	-	1
Dyspepsia and Debility - -	71	26	38	-	-	-	10	3	3	3	4	11	-	3	1
Headache, &c. - - - -	-	-	-	-	-	1	5	9	13	20	2	28	2	29	9
Dropsy - - - - - -	-	1	2	-	-	-	18	1	1	1	1	2	-	5	-
Worms - - - - - -	-	1	1	-	-	-	-	-	1	1	-	3	-	-	-
Purpura - - - - - -	1	-	-	-	-	-	-	-	-	-	-	2	-	-	1
Pyæmia - - - - - -	-	-	-	-	1	-	-	-	-	-	-	1	-	-	-
Cancer - - - - - -	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
Wounds and Injuries - -	197	73	157	37	41	1	42	45	60	60	4	153	4	25	24
Burns and Scalds - - -	12	4	4	-	-	-	-	2	4	4	-	8	2	1	-
Hernia - - - - - -	-	2	-	-	-	-	1	1	2	-	-	3	-	2	-
Submersion - - - - -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asphyxia - - - - - -	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Poisoning - - - - - -	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
TOTAL - - -	772	574	695	152	224	17	354	358	339	468	50	803	42	183	181

TABLE, No. 6.

INJURIES in each SHIP employed on the HOME STATION.

Dee.	Donegal.	Duke of Wellington.	Duncan.	Durham.	Eagle.	Excellent.	Ferret.	Fisgard.	Formidable.	Fox.	Frederick William.	Ganges.	Gladiator.	Hector.	Helicon.	Implacable.	Impregnable.	Indus.	Irresistible.	Jackal.	Liberty.	Liffey.	Lion.
2	–	2	–	–	–	23	–	1	–	30	–	9	1	2	1	4	10	3	–	1	–	4	2
–	1	3	4	–	3	12	1	3	5	–	–	1	1	–	–	–	–	2	–	–	–	2	3
–	4	1	–	–	–	–	–	–	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	–	2	–	–	–	–	–	–	–	–	–	10	–	–	–	–	–	–	–	–	–	–	–
–	–	2	–	–	–	1	–	1	–	–	–	1	–	–	–	2	–	–	–	–	–	1	–
–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–
–	–	3	–	–	–	2	–	–	–	–	–	–	–	–	–	9	32	1	–	–	–	–	–
–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	2	–
–	–	–	–	–	1	–	–	1	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–
–	–	–	–	–	–	1	–	1	2	–	–	–	–	–	–	–	1	2	–	1	–	1	3
–	2	–	–	–	–	1	–	1	1	–	1	–	–	–	–	1	–	7	–	1	–	–	–
–	–	1	–	–	–	3	–	5	–	–	–	–	–	–	1	–	2	2	2	–	–	2	–
–	–	2	–	1	–	5	2	–	–	1	–	–	–	–	–	1	1	2	–	–	–	1	–
–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	5	–	–	–	2	–	–
1	8	24	4	1	2	40	–	3	–	2	3	15	6	–	3	3	12	16	2	1	–	2	9
1	9	4	1	–	–	11	1	3	5	1	2	4	–	2	–	2	5	5	2	–	1	1	3
3	73	94	9	4	5	124	9	29	32	17	77	95	11	12	18	62	101	82	25	6	9	7	37
2	14	52	5	–	–	41	5	8	3	2	1	65	11	3	3	25	16	12	9	–	4	4	30
–	2	–	–	–	–	1	–	1	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	1	–	–	–	1	–	–	–	–	–	1	–	1	–	–
–	1	1	–	–	2	9	–	1	–	4	1	–	1	–	–	–	4	10	1	–	–	9	–
–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	2	–	–	–	–	5	–	–	3	1	–	–	–	–	–	–	1	2	1	1	–	1	–
–	2	1	–	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–	1	–	–	–	–
–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	2	–	–	–	–	–
–	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
–	1	–	–	–	–	4	–	1	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–
2	21	23	3	1	22	55	1	4	7	9	2	13	9	–	1	2	1	29	1	4	2	11	15
–	–	3	2	1	1	8	3	1	5	5	1	4	9	–	3	–	3	10	1	–	2	1	7
1	–	3	–	–	–	5	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	2
–	–	1	1	–	–	6	–	2	1	–	1	2	–	–	–	1	18	3	–	–	–	–	3
–	1	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–	3	1	–	–	1	–
1	31	76	9	–	8	45	1	30	5	12	8	9	15	6	1	2	7	24	13	3	–	13	11
–	9	27	2	–	2	21	–	6	1	–	–	1	6	5	1	–	–	10	10	1	–	9	10
2	8	8	4	–	14	21	–	34	5	2	–	6	4	–	1	2	3	14	6	–	1	6	5
–	5	30	5	–	–	19	1	12	–	3	3	1	3	3	6	–	4	15	3	2	–	5	5
–	3	2	1	1	–	–	–	–	–	1	1	1	1	–	3	1	–	1	1	–	–	–	1
11	24	39	8	4	7	66	2	13	9	18	11	27	25	1	5	8	34	39	16	1	3	23	30
–	1	–	–	2	–	3	–	2	–	–	–	1	–	–	–	1	4	–	–	1	–	–	–
–	1	–	–	–	–	1	–	1	1	–	–	8	2	1	2	1	–	–	–	–	–	5	–
–	8	4	1	–	2	14	–	4	2	2	5	16	5	–	1	2	4	7	2	1	–	5	1
–	2	1	–	–	–	–	–	1	–	–	–	1	–	–	–	–	–	–	–	1	–	–	1
–	1	2	–	–	–	5	–	2	–	–	–	1	2	4	–	1	4	–	1	–	–	3	–
–	–	1	–	–	–	4	–	–	–	–	–	7	–	–	–	1	–	3	–	–	–	–	–
–	3	–	1	–	–	3	–	–	–	–	–	–	1	1	–	–	2	3	–	–	–	–	–
–	12	9	1	–	–	19	–	6	1	2	–	–	5	–	1	–	–	11	5	–	1	2	5
19	61	72	11	5	3	107	13	21	19	10	31	157	48	12	12	52	144	51	13	1	40	76	59
3	11	32	11	–	1	44	12	15	9	10	9	148	24	5	1	132	126	26	16	2	19	35	18
–	3	19	–	–	1	16	–	6	–	–	–	2	1	–	–	–	–	7	9	–	6	–	1
–	9	2	–	–	–	24	1	6	2	1	1	21	7	1	–	7	15	7	–	–	4	7	2
3	27	30	2	5	–	55	2	8	11	9	2	3	13	6	6	5	16	34	4	–	4	9	22
–	1	1	1	–	–	4	–	–	–	4	–	–	2	–	–	–	–	1	1	–	1	–	1
–	1	–	–	–	–	2	–	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–	2	–
–	–	–	–	–	–	1	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
3	99	117	36	2	10	203	11	41	28	32	41	155	65	13	16	39	84	101	23	10	12	88	84
–	6	4	1	–	1	6	–	1	2	1	1	2	1	–	–	9	4	4	2	–	1	6	6
1	–	3	–	–	–	7	–	1	–	–	–	1	–	1	–	1	–	2	2	–	–	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–
1	–	–	–	–	–	1	–	–	–	7	–	–	–	–	–	–	–	1	–	–	–	–	–
56	461	702	124	27	84	1,054	65	280	163	188	203	791	280	79	86	378	660	559	177	38	113	344	378

continued at page 50.

TABLE, No. 6.—Showing the Number of Cases of all Diseases and - - - -

DISEASE OR INJURY.	Liverpool.	Lizard.	Lord Clyde.	Marines, Ireland.	Martin.	Medusa.	Mersey.	Minotaur.	Nankin.	Niobe.	Orwell.	Osborne.	Pallas.	Pembroke.	President.
Continued and Remittent Fever	-	-	3	5	3	1	3	2	-	-	-	2	3	-	-
Intermittent Fever	-	4	-	-	-	1	1	1	-	-	-	-	1	-	-
Small-pox	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vaccinia	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-
Scarlatina	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-
Varicella	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Measles	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Disease of the Brain	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
Apoplexy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Epilepsy	-	-	4	-	-	-	-	2	-	1	-	-	-	-	-
Paralysis	-	-	2	-	-	-	-	1	-	-	-	-	1	-	-
Insanity	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-
Delirium Tremens	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Neuralgia	2	1	1	2	-	-	-	-	-	-	-	-	-	-	-
Vertigo	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
Inflammation of the Lungs and Pleura	2	3	12	7	2	2	-	3	1	2	-	-	1	10	-
Phthisis and Hæmoptysis	1	-	4	2	-	1	3	4	1	-	-	1	1	2	1
Influenza and Catarrh	124	10	74	18	3	9	13	37	2	17	1	24	46	40	3
Cynanche	14	-	26	9	4	2	3	28	-	3	2	2	26	22	-
Asthma	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-
Mumps	-	-	10	-	-	-	-	-	-	-	-	-	-	-	-
Disease of the Heart, Functional and Organic	-	-	1	1	-	-	1	1	-	1	-	-	1	6	-
Aneurism	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Hæmorrhoids	2	-	1	1	-	-	-	2	-	-	1	-	1	1	-
Varix	-	-	-	-	-	-	-	-	-	-	2	-	3	-	-
Inflammation of the Stomach and Bowels	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
Cholera	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-
Dysentery	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diarrhœa	13	-	7	8	-	8	2	10	-	1	3	5	13	7	4
Constipation and Colic	5	2	-	2	1	-	2	3	-	-	1	-	-	1	1
Inflammation of the Liver	-	-	-	-	-	1	-	-	-	1	-	-	2	-	-
Jaundice	2	-	-	1	-	-	-	2	-	-	-	-	1	-	-
Splenitis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Inflammation of the Bladder and Kidneys	-	-	1	-	-	-	-	1	1	-	-	-	1	-	1
Syphilis, Primary	6	1	21	15	2	3	12	52	-	4	1	-	22	8	-
Syphilis, Secondary	6	-	2	3	-	6	3	14	1	-	-	-	6	9	-
Gonorrhœa	11	2	5	6	1	4	2	10	-	-	-	1	29	6	1
Orchitis	4	2	19	2	1	6	4	11	-	1	-	3	1	3	1
Stricture of the Urethra	-	-	4	-	-	-	1	1	-	-	-	-	1	1	-
Incontinence of Urine, &c.	1	-	-	-	-	-	-	1	-	-	-	-	1	-	-
Rheumatism	26	3	35	4	-	6	17	32	2	-	1	4	24	15	3
Gout	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Disease of the Bones and Joints	2	-	6	-	-	-	-	2	-	-	1	-	-	-	-
Inflammation of the Eyes	4	1	3	3	1	1	1	5	1	-	-	1	4	2	-
Amaurosis and Cataract	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Otitis and Deafness	-	-	-	-	1	-	-	-	-	-	-	-	1	-	-
Erysipelas	-	-	3	-	-	-	3	5	-	-	-	-	1	1	-
Scrofula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bubo (*Symp.*)	1	1	10	4	3	-	2	4	-	-	1	1	2	1	-
Phlegmon and Abscess	92	5	79	12	17	6	26	73	1	11	7	7	70	27	5
Ulcer	18	4	33	3	5	2	5	35	-	3	1	4	37	8	-
Psora	-	-	-	7	-	1	-	8	-	-	-	-	4	2	-
Eruptions, &c.	8	2	9	-	6	1	4	1	-	1	1	1	5	7	1
Dyspepsia and Debility	5	2	20	4	3	2	6	9	1	2	4	6	4	30	2
Headache, &c.	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-
Dropsy	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-
Worms	-	1	-	-	-	4	-	-	-	-	-	-	-	-	-
Purpura	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyæmia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cancer	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wounds and Injuries	85	6	130	15	7	13	39	81	4	14	6	16	68	44	3
Burns and Scalds	3	-	4	1	-	1	2	2	-	-	-	2	4	-	-
Hernia	-	-	1	-	-	1	-	1	-	-	-	-	-	-	-
Submersion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asphyxia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Poisoning	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
TOTAL	438	51	534	135	61	82	158	451	15	63	33	82	389	257	27

continued from page 49.

Injuries in each Ship employed on the Home Station—*continued.*

Research.	Revenge.	Royal Adelaide.	Royal George.	St. George.	St. Vincent.	Saturn.	Sealark.	Squirrel.	Trafalgar.	Trafalgar, Second Commission.	Trincomalee.	Victoria and Albert.	Victory.	Viper.	Virago.	Vixen.	Warrior.	Waterwitch.	Wellesley.	Winchester.	Wivern.	TOTAL.
–	–	4	1	6	17	1	3	–	1	–	–	–	4	3	2	–	13	3	–	–	1	234
1	–	–	3	1	1	–	–	–	–	1	–	–	6	–	2	–	2	–	–	–	2	128
–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	3	–	1	–	–	–	–	20
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	15
–	–	–	–	–	1	–	–	–	–	–	–	–	2	1	–	–	–	–	1	–	–	22
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	12
–	–	–	1	–	13	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	106
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	9
–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	6
1	1	–	1	–	2	–	–	1	–	1	–	–	2	–	1	–	–	–	–	–	–	45
–	1	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	29
–	1	–	1	2	1	–	–	–	1	–	–	–	1	–	–	–	–	–	–	–	–	24
–	–	3	–	–	2	–	–	–	–	–	–	–	–	–	–	–	1	1	–	1	–	40
–	1	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	1	–	–	–	2	46
–	–	–	–	–	1	–	–	–	3	–	–	–	–	–	–	–	–	–	–	–	–	26
2	4	4	7	5	13	1	1	–	2	1	4	1	6	–	–	–	6	–	2	1	1	394
2	–	5	3	1	2	–	–	–	1	1	–	1	4	2	1	–	3	–	3	1	–	160
31	19	4	182	8	63	1	11	9	13	13	6	16	22	4	9	4	52	6	9	9	25	2,475
9	3	2	14	3	37	–	1	2	2	1	3	7	4	3	–	–	24	2	6	1	–	850
–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	26
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	72
–	–	–	4	–	3	–	1	–	–	–	–	1	1	1	4	–	4	–	–	–	2	105
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4
1	1	–	4	–	–	–	–	–	–	–	–	1	2	–	–	–	1	–	1	1	–	52
–	–	–	–	–	–	–	–	–	–	–	–	–	2	–	1	–	–	–	–	–	–	17
–	2	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	15
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	2	–	–	–	–	11
5	4	5	26	2	6	–	–	–	5	–	1	11	14	4	6	1	23	1	5	6	8	604
1	–	1	5	2	3	–	3	–	–	–	–	4	1	–	7	–	15	1	–	–	1	186
1	–	–	–	–	–	–	–	1	–	–	–	–	2	–	–	–	1	–	1	–	–	30
–	–	–	–	–	3	–	–	2	–	–	–	–	2	–	–	–	–	–	–	–	–	66
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	2
–	2	3	1	1	1	–	–	–	–	–	–	1	2	–	–	–	–	–	–	–	–	34
2	13	6	23	18	12	–	–	–	–	3	–	1	25	2	8	–	53	6	11	1	2	953
6	3	4	19	5	–	–	–	–	–	1	–	–	5	–	5	–	4	1	–	1	6	322
1	5	4	20	5	9	–	–	1	1	–	–	1	10	3	10	2	18	1	4	–	5	481
2	7	10	4	5	5	–	1	1	3	2	–	–	5	1	3	1	12	2	5	–	2	373
–	–	1	1	–	1	–	–	–	–	1	–	1	2	–	–	–	3	–	–	–	4	67
–	–	–	–	1	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	7
13	22	13	38	15	19	1	5	2	5	4	–	10	22	2	8	7	32	1	9	4	18	1,119
–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	38
1	1	–	–	1	–	–	–	2	2	–	–	1	1	–	–	–	6	–	–	–	2	66
–	5	1	4	1	5	–	–	1	2	2	1	1	1	1	4	–	12	–	5	1	5	244
–	–	–	–	–	1	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	11
1	1	–	3	–	4	1	–	–	–	–	–	–	1	–	–	–	3	–	–	–	–	56
4	–	1	–	1	8	–	–	–	–	–	–	–	1	–	–	–	1	–	–	–	–	52
1	–	–	–	–	–	–	–	1	–	–	–	–	3	–	–	–	1	–	–	–	–	22
3	2	–	6	8	3	–	–	–	1	–	1	–	3	2	–	–	5	–	–	–	3	217
9	42	3	68	26	65	–	14	30	4	8	2	9	32	9	34	1	86	5	7	5	27	2,614
5	11	1	20	20	50	2	17	33	7	3	–	–	9	3	8	1	7	–	5	–	9	1,387
–	–	9	3	6	31	–	3	1	1	–	–	–	9	1	2	–	9	1	2	–	2	230
6	3	–	2	3	48	1	1	6	1	–	–	1	–	–	1	–	13	1	3	–	12	334
5	10	5	49	4	5	1	2	2	4	2	1	9	21	1	5	–	4	2	2	1	3	767
–	–	–	1	–	–	–	1	2	–	–	–	1	2	–	1	–	3	–	–	1	1	62
–	–	1	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1	20
–	–	–	–	–	1	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	17
–	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
31	57	22	79	32	72	7	22	17	19	5	2	16	11	15	35	5	140	4	18	1	31	3,402
2	–	–	5	–	2	–	3	1	–	–	1	1	3	–	2	–	6	–	1	–	3	150
–	2	–	1	–	2	–	–	–	–	–	–	1	1	–	1	–	–	–	–	–	–	39
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	12
146	224	112	599	183	516	16	91	115	80	50	22	99	247	58	164	22	567	38	101	35	178	18,951

MEDITERRANEAN STATION.

Mediterranean Station.

THE squadron employed on the Mediterranean Station in 1867 comprised twenty vessels, viz., six iron-clads; one vessel of the first rate; two of the fourth rate; two sloops; three steam vessels, one of which was employed on surveying service; one gun vessel; four gunboats; and one receiving ship permanently stationed in Malta harbour. The returns from twelve of the vessels were for the whole year, and from the remainder for periods varying from three to eleven months. The mean force corrected for time was 4,800, and the total number of cases of disease and injury entered on the sick-list 6,424, which is in the ratio of 1338·3 per 1,000 of mean force, being a reduction, compared with the preceding year, equal to 74·2 per 1,000. Of these, 139 were invalided and forty-three died; the former being in the ratio of 28·9, and the latter of 8·9 per 1,000 of mean force. Compared with the previous year, there was a decrease in the invaliding rate equal to 12·7 per 1,000; but there was an increase in the ratio of mortality to the extent of 3·5 per 1,000. The death-rate in 1866, however, was exceptionally low.

The daily loss of service from fevers, including the exanthemata, was in the ratio of 3·2 per 1,000 of mean force; from diseases of the brain and nervous system, ·1; of the organs of respiration, 4·6; of the heart and bloodvessels, ·2; of the alimentary canal, ·1; of the liver, ·2; of the genito-urinary organs, 4·6; from rheumatism, 3·3; diseases of the bones and joints, ·8; of the special senses, ·6; of the skin and cellular tissue, 12·8; from dyspepsia and debility, 1·1; and from wounds and injuries of various kinds, 10·. The average number of men sick daily was 216·9, which is in the ratio of 45·1 per 1,000 of mean force, being a slight reduction compared with the preceding year.

Fevers.—There were 290 cases of continued and remittent fever, eighty-three of ague, seven of small-pox, and five of measles, under treatment during the year. One person was invalided

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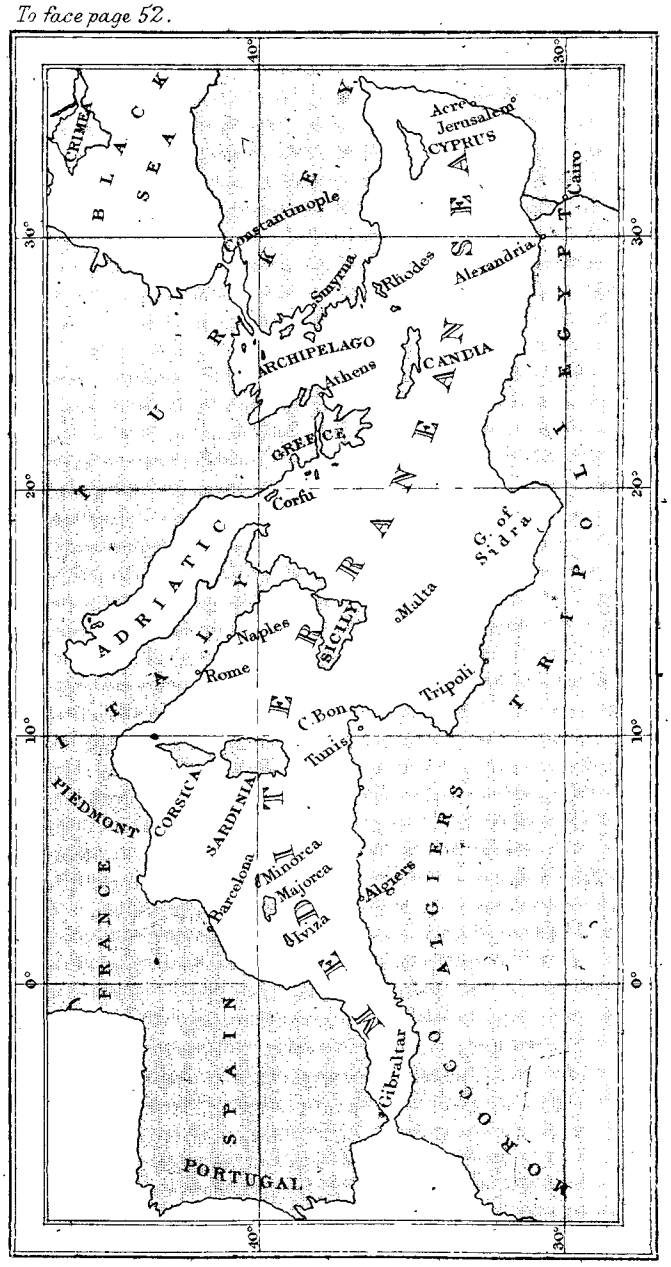
MEDITERRANEAN STATION.



invalided for the sequelæ of fever, and fourteen of the cases terminated fatally. Each case of primary fever was, on an average, about seventeen days under treatment on board-ship and in hospital; each case of ague between seven and eight days; each case of small-pox about thirty-two days; and each case of measles about seven days.

Continued and Remittent Fevers.—There were eighteen cases of primary fever in the Arethusa, four of which proved fatal. Seven of the cases occurred in the Midsummer quarter of the year, three in the Michaelmas quarter, and eight in the Christmas quarter. Three of the fatal cases seem to have been of the enteric type. In consequence, however, of several changes which took place in the medical staff of the ship, it is somewhat difficult to arrive at a clear understanding as to the true nature and origin of the cases. The first fatal case was sent to Malta Hospital as a case of rheumatism. In hospital the attack was pronounced to be one of continued fever. The symptoms in hospital were "considerable fever, with severe aching pains in the back, neck, and loins, also in the shoulders. No tenderness on pressure. Tongue, foul; pulse, 120, soft; urine, high coloured and scanty. The bowels had been opened by medicine." On the day following his admission to hospital the pains continued unchanged, but the fever was increased. There was headache and heat of scalp. Delirium set in during the night, and next morning the scalp felt hot; he perspired freely, and there was some abdominal tenderness. He continued delirious all the day, and was exceedingly restless. At night both the restlessness and the delirium increased, and on the following morning he expired. No post-mortem examination of the body appears to have been made, and from the report of the case it is not easy to say whether it was one of continued fever or of rheumatic meningitis. It occurred in the Lady quarter of the year, and is returned as one of rheumatism, but in the death report taken from the hospital returns, it appears as one of fever. This will account for the apparent discrepany of no case of fever having occurred in the Lady quarter, as noted above.

The second fatal case occurred in the month of August when the vessel was at Spezzia, where fever was prevailing in a very virulent form on shore. It was of the true enteric type, but without eruption, and proved fatal on the twenty-eighth day. The third fatal case occurred in the month of November. The disease, however, appears to have been con-

Mediterranean Station.

tracted at Spezzia also. He had been feeling ill for some days before he was placed on the sick-list, and he had been on leave at Spezzia, and spent one whole day (twenty-four hours) on shore there. The fever was unmistakably enteric, and the fatal result seems to have been immediately caused by profuse hæmorrhage from the bowels. He died on the twenty-fifth day after his admission to the sick-list; and, on post-mortem examination of the body, the cæcum and colon were found loaded with blood. Peyer's patches were ulcerated, and there was a large ragged ulcer on the ileo-cæcal valve, the size of half-a-crown, from which the greater part of the hæmorrhage is supposed to have come. The fourth fatal case occurred at Smyrna in the month of December. The subject of it, a leading seaman, had been placed on the sick-list on the 28th of October, when the vessel was at Malta, where he had been on shore on leave for some days. The case is returned as one of remittent fever, but throughout its whole course there was great intestinal irritation. The man was an exceedingly dissipated character, who seems to have contracted fever at Spezzia, which, by being carefully watched and treated, had never reached to any degree of severity, and he ultimately recovered so far as to justify his being discharged to duty. At Malta, however, he went on leave, and the dissipation in which he indulged while on shore appears to have induced a relapse, which terminated fatally on the thirty-ninth day.

All the more severe cases of fever in the Arethusa occurred in the Michaelmas and Christmas quarters. Those which occurred in the Midsummer quarter, although tedious, were unimportant. The disease made its appearance on the first occasion at Gibraltar about a fortnight after the departure of the vessel from Malta, and was confined to the members of the gun-room mess, four of whom were so debilitated by it as to necessitate their being invalided and sent off the station. Subsequently it reappeared at Spezzia, where general leave was given to the squadron, although fever, said to have been "pernicious remittent," was prevailing extensively and fatally on shore. From the prominent abdominal symptoms which presented themselves in the cases on shore, some suspicion of an association of fever with cholera was entertained, the latter disease being prevalent in several parts of Italy; but this idea does not appear to have maintained ground long. During the time the men were on leave, no disease of any importance occurred; but a fortnight afterwards, fever cases of a very virulent character presented themselves, the chief

chief symptoms being severe rigors followed by fever, and accompanied with abdominal tenderness and diarrhœa. The patients presented a very depressed typhoid appearance, and debility was so great, that faintness was induced at once in the attempt to assume the erect position. There can be little doubt that the disease, in the majority of instances, was enteric fever, contracted in the first instance at Malta, where it is rarely absent; and secondly, at Spezzia, where it was epidemic on shore amongst the men employed on the public works. In some instances, as not unfrequently happens, malarial influences seemed to have occasioned a certain periodicity in the febrile phenomena, and to have given rise to the impression that the disease was essentially remittent fever. Its specific enteric character, however, was clearly demonstrated by the symptoms which presented themselves in the cases that have been recorded, and by the pathological appearances found on post-mortem examination of the body where a fatal result occurred.

During the three months the Assurance was on the station, only one case of primary fever was entered on the sick-list. It was of some severity, however, and complicated with pneumonia of the lower lobe of the left lung. The patient, a leading seaman, was sent to Malta Hospital, where he appears eventually to have recovered.

There were ten cases of primary fever in the Caledonia, two of which terminated fatally. Seven of these are classed as continued fever, and three as febricula. The latter could hardly, however, be called an ephemeral fever, as the average duration of each case was over nineteen days.

With reference to these cases, the surgeon* of the ship says in his Journal:—

"A total of seven cases of continued fever, and three of an ephemeral character returned as febricula, appear in the returns for the period of this journal. Of the former, three occurred in the Michaelmas quarter, and assumed a typhoid type of a very severe degree. The first case occurred in the person of one of the carpenter's crew, who died after an illness of twelve days, the latter four of which were passed in the Civil Hospital at Spezzia, whither he was removed to avoid the noise and discomfort of the ship.

"The second caseoccurred to a bombardier of the Royal Marine Artillery, who died on board after an illness of eighteen days; and the

* Surgeon J. G. T. Forbes.

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the third, which recovered after a very severe and prolonged attack, was in the person of a gunner of the Royal Marine Artillery. These men had been last on shore when leave was given at Spezzia, on the 18th of August; they were all previously in good health, and at the time of their visit to the shore, no epidemic of fever prevailed in Spezzia. Their symptoms were very similar; in all, the bowels were affected, and tenderness was experienced on pressing over the iliac region of the right side. Spots, however, only occurred in the first and third, wandering delirium in all.

"The remaining four cases occurred in the Christmas quarter, and presented merely symptoms of continued fever without any typhoid character. The only peculiarity was the duration of the debility and tendency to cachexia, without much vascular excitement; indeed, such is a frequent occurrence in febrile cases in this station, the nervous depression and muscular weakness being in no way proportionate to the febrile phenomena. Cases hardly meriting the name of fever, from the little excitement of the circulation in the early stages, frequently prove much more debilitating and slower in convalescence than those cases where febrile reaction is brisk, and the early symptoms of marked severity.

"Of the three cases of febricula no remarks are necessary; they were simply slight attacks of ephemeral fever, unfollowed by the depressing consequences observed in the continued fever cases.

"It may be as well to state that the dates of admission on the sick list of the three men who suffered from typhoid were as they are quoted above, the 12th, 13th, and 25th of September. The squadron put to sea from Spezzia on the 22nd of August, and proceeded to Elba, where we continued from the 27th of that month, to the 3rd of September, after which we went to Bastia, in Corsica, returning to Spezzia on the 19th. At none of these other ports was general leave given. Both at Elba and Bastia our anchorage was at a considerable distance from the shore, considerably beyond the risk of any injurious exhalation from drains or marshes."

As there can be little doubt that these men contracted the infection at Spezzia, where they were on shore, on twenty-four hours' leave, on the 18th of August, the period of incubation, taken from that date to the time of their being placed on the the sick-list, would be twenty-five, twenty-six, and thirty-eight days respectively. In all the cases, however, the men stated that they had been unwell for some days before applying for medical treatment.

One of the medical officers* of the ship, remarking on the cases of enteric fever, gives the following concise history of them:—

"Three cases of enteric fever occurred, all contracted at La Spezzia,

* Assistant Surgeon John Buckley.

Spezzia, which, from the absence of all sanitary precautions, is, in the summer season, a hotbed of all kinds of fevers; two proved fatal, one recovered, though despaired of for several days. They were of a very violent character from the outset. The first patient, aged 23, was placed on the sick-list on the 12th of September, with general febrile symptoms, accompanied with inflammation of the fauces. Fever, with great depression, increased rapidly, and on the 19th there was slight abdominal tenderness on severe pressure, with slimy evacuations. He was sent to the Italian Civil Hospital at La Spezzia on the 20th. Up to this time nutrients and stimulants were fully administered; but an opposite plan was adopted by the Italian practitioners under whose care he was placed. Leeches were applied in great numbers on the abdomen, and around the forehead, and wine was discontinued. He sank rapidly, and died of exhaustion on the 22nd. The disease was contracted about three weeks before at the same place, when general leave had been granted.

"The second patient contracted the disease at the same place. He remained free from any dangerous symptoms, and seemed to improve until the 19th, when he complained of pain on pressure about the umbilicus, accompanied with diarrhœa. On the 28th there was epistaxis with difficulty of breathing, and on the 31st the pulse, from being full, became thready and rapid. He remained in a torpid state until the evening of the 1st of October, when he died with symptoms of oppression of breathing; the extremities were cold and blue. He took nutrients up to the last moment.

"The third case was placed on the sick-list on the 25th of September, with the usual febrile symptoms, accompanied with ulceration of the fauces. On the 2nd of October there was marked gurgling in the left iliac fossa, a dull, dreary expression of face, and a collection of sordes in the mouth, with a frequent weak pulse. He continued in a dangerous state, wavering between life and death, until the 13th, when a favourable change was observed. During this long period he was comatose, the pulse was 100, the temperature very high, and the urine drawn off daily by the catheter. His youth and strength, aided by the free administration of nutrients and stimulants, carried him safely through. Grey powder was given only in the last case, and for a short time, with no influence on the course of the disease. The disease was contracted at the same time as in the two former cases, the period of incubation being unusually long."

There were three cases of primary fever in the Caradoc, the average duration of each case being between fourteen and fifteen days. They occurred during the Michaelmas quarter of the year, when the vessel was at Varna, where it appears a party of officers and men went upon a pleasure excursion up a large lake in the neighbourhood, and remained absent for four days, sleeping under canvas on the shores of the lake, the weather being very fine and warm. About a fortnight afterwards the vessel having, in the meanwhile, returned to the Bosphorus, three of the men who had been

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of the pleasure party were attacked with fever, and in two the symptoms being rather serious, and of an enteric character. The disease is supposed to have been contracted on shore on the occasion of the excursion.

In the Cockatrice there were nineteen cases of primary fever, of which one proved fatal; seven of the cases are classed as continued fever, one as typhus, and one as febricula. Typhus is said to have been very prevalent on shore at Galatz, where the vessel was lying, and the person affected with that disease was the ship's steward, who probably had considerable communication with the shore. From the first, the nervous system was seriously implicated, and two days after his entry on the sick-list (11th September) a suspicious looking eruption was observed over the thorax and upper extremeties. The man was at once carefully isolated from the rest of the ship's company. On the following day the eruption is said to have been very distinct, and of a decided typhus character. There was no pain on pressure over the abdomen. On the 13th the eruption was still out, and the medical officer* reports:—

"It appears thicker than yesterday. The individual spots are a little elevated, and of a dusky reddish hue. The colour departs under pressure, but returns immediately on the removal of the finger. The spots are of different sizes, and several sudamina are scattered amongst them."

On the 18th the eruption seemed to have disappeared, leaving a staining of the cuticle behind it; the patient was much prostrated, with a small and thready pulse, lying on his back in a state of low muttering delirium. Sudamina now appeared profusely over the abdomen and sides; he lost power over the sphincters; the urine became albuminous; there was slight oozing of blood from the nostrils; hiccup was persistent and most distressing; mucus began to collect in the bronchi; and he died comatose on the 20th. No post-mortem examination of the body was made. Shortly before death he passed a quantity of black liquid fæces, and after death a great deal of dark-coloured matter flowed from his mouth.

There were eight cases of primary fever in the Cruiser, one of which proved fatal. During the first five months of the

* Assistant Surgeon James Bradley.

the year, not a single case of fever occurred, although the vessel was employed on the coast of Syria, and lay for a month at Alexandretta, a place notorious for malaria. The surgeon* says :— Mediterranean Station.

"At Malta, in July, the first case occurred. This was one of mild ephemeral fever, occurring in a boy who was sent to hospital, but soon again rejoined the ship. The next case was also one of mild ephemeral fever. It occurred in September at Spezzia, but is not shown in the Returns, as the subject, a boy, was on the list at the time with ulcer. In November, after leaving Malta for the coast of Syria, three cases were added to the list; the remaining four in December, after the arrival of the ship at Beyrout. The first of these cases was one of typhoid fever of the remittent type, and proved fatal on the eleventh day. In this case the abdominal symptoms, diarrhœa, gurgling in the right iliac fossa, and the rose-coloured eruption over the abdomen, were well marked. During the three weeks the Cruiser was in dock at Malta, the men were turned over to the Hibernia, but daily employed at work in the dockyard, and at this time the emanations at the head of Dockyard Creek were occasionally very offensive. To these foul emanations I attribute the above case, which was added to the list on the 13th of November, the day following our departure from Malta. The other cases were so mild, that it was not found necessary to confine them to bed, though some of them were very protracted. They ought rather to be considered as cachexia than fever, there being an entire absence of active fever. They were characterised by a feeling of debility, weak pulse, loss of appetite, slightly furred tongue, and in the prolonged cases a tendency to diarrhœa, with occasional irritability of stomach. They varied in duration from two to thirty-six days. In the protracted cases the feeling of debility remained long after the appetite had returned, the tongue had been clean, and the bowels regular. The last case was discharged to duty on the 27th of December. None of these cases have been followed by rheumatism, so common a sequela of the Mediterranean fevers."

In the Endymion there were ten cases of primary fever, of which two terminated fatally. They are all classed as remittent fever, and are termed by the surgeon† remittent typhoids. One of the cases was contracted at Malta, and the remainder appeared after general leave given at Spezzia. They were well-marked cases of enteric fever. The surgeon attributes the remittent character of the disease to the swamps around Spezzia, and the enteric symptoms to the use of water obtained from the shore for drinking purposes.

"The

* Surgeon Alex. M'Bride, M.D.
† Surgeon Wm. E. O'Brien.

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"The water supplied," he says, "consisted of the washing of the hill-sides, and irrigated patches of land during the heavy rains. As night soil is largely used in Italy for manuring purposes, the result could be easily anticipated."

There was a single case of primary fever in the Hibernia; it was of an ephemeral character, and of no importance; and the same may be said of seven cases which were placed on the sick-list of the Hydra.

In the Ocean there were forty-three cases of primary fever, one of which proved fatal; of these four are classed as continued, five as remittent, thirty-three as febricula, and one as enteric fever. Forty of these cases occurred during the Midsummer quarter, at the end of which the vessel left the Station for China. The surgeon,* in remarking on the prevalence of these cases, says :—

"Cases of fever have been numerous, but not generally severe, save the solitary enteric one, which was attended with the characteristic eruption, and is progressing favourably. It occurred in a spare, weakly, old man, the ship's cook, who is a pensioner. Those of the remittent character or type were also mild, and soon yielded to emetics, purges, quinine, and careful nursing. The attack in two instances followed immediately a fainting fit, and debility was the most marked symptom. 'Continued fever' was uncomplicated, and followed a general malaise, which had existed some five or six days before applying for treatment. 'Febricula' also occurred in a very mild and slight form, and appeared to be caused by disorder of the digestive organs, often following a drunken debauch on shore.

"The predisposing causes of the several forms of the disease cannot be satisfactorily accounted for. Perhaps the unusually warm season, both at Malta and Gibraltar, but especially at the former place, where the need of rain was becoming most urgent for the whole island, may, combined with the prevailing winds, which were from the south-east, have had some influence. Thirty-eight days during the quarter were passed at sea, when the weather was so moderate that constant and thorough ventilation was insured by the ports on the main-deck being kept open; the duties which the ship's company were called upon to perform were neither fatiguing nor exhausting; the internal arrangements of the ship generally tended to increase the seaman's comfort; every care was paid to the cleanliness of the holds and bilges, and only towards the end of the quarter, in the month of June, were the decks inconveniently overcrowded by the reception on board of supernumeraries for passage to China, to which station the ship is now proceeding. Every

* Surgeon John Rorie.

Every place at which the vessel touched was healthy, and Malta and Gibraltar were both, for the period of the year, not more subject to fever than usual. Perhaps, then, the morbific agent which has contaminated the blood, and caused the various forms of the disease, may have been produced by the unavoidable overcrowding, combined with an increased atmospheric temperature, and gaseous emanations from the ship herself, the result of the decomposition of sea-water. At all events, the same causes have been appearing all through the quarter, whether at sea or in harbour, and as yet the disease shows no sign of disappearing." . . . . . "Debility was one of the earliest and most enduring symptoms, and the tongue in almost every case was excessively coated with a thick fur, and deeply fissured in one or more places. The febrile excitement at the outset was not very great, and soon disappeared, to be succeeded by this extreme, ever-present, almost unconquerable debility, which invariably caused a long convalescence. The cases did not occur in any particular part of the ship, but were fairly distributed among the ward-room officers and servants, gun-room offices, warrant officers, ship's corporals, chief petty officers, and seamen and marines' messes."

The fatal case occurred in the person of an officer, a muscular, healthy-looking man, who had suffered, however, from marsh fevers while serving on the East Coast of Africa. The onset of the disease was gradual and obscure, and the first symptoms felt for a few days before he applied for treatment were a sense of lassitude and weariness, creating a disinclination to either corporeal or mental exertion, and total loss of appetite; to these symptoms succeeded pain in the left hypochondrium, extending posteriorly to the left kidney, and attended with the scanty secretion of a deep, brown-coloured, turbid urine; nausea, constipation, general abdominal uneasiness, and but very slight pyrexia. These symptoms induced him to apply for medical treatment, and as he did not appear to improve in any degree, he was discharged to Malta Hospital, where he rapidly became worse, and died on the tenth day after his admission. No examination of the body appears to have been made after death; and while he was under treatment in hospital his symptoms presented no very characteristic features. They were of a very low type; delirium, however, did not set in until the day before his death, but he was comatose for some time before he died.

There were thirty-seven cases of primary fever in the Prince Consort. With reference to twenty-four of these, which occurred in the first six months of the year, and of

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which nineteen are classed as continued, and five as febricula, the surgeon* says:—

"In reviewing the various groups of disease which in the aggregate go to make up this Return, the class of fever stands first in importance, as it does in priority. To this cause is due the most serious cases of sickness that have occurred, the greatest loss of service, with the largest proportional amount of invaliding and hospital cases, the former following the latter. The cases were marked by most of the usual symptoms of the climatic (continued) fever of these parts (Malta). Among the most remarkable of these may be specified a tendency to relapse, protracted convalescence, and an adynamic tendency throughout, leaving an impaired state of health, which, in very many instances, total change of climate and removal from the island would alone surmount.

"There was a general tendency to rheumatic affections and pains, which in three cases were of a severe description. In one it came on during the course of the fever, and led, eventually, to the officers on during the course of ground of ill health. In another, the being superseded on the ground declared itself some days rheumatic or arthritic swelling and pain previously to the sudden accession of fever. In a third, the rheumatic symptoms were somewhat less distinctly marked, but light was thrown on them by forerunning and subsequent events. Some of the attacks were ushered in by acute sthenic symptoms, which almost seemed at once to proclaim their identity; others approached in a more delusive manner, preceded by a more or less prolonged period of indisposition and disordered functions. As usual, the principal tendency to complication, and severe functional derangement were most apparent in the gastro-intestinal track: a furred tongue, nausea, anorexia, foul taste in the mouth, and irregularity of the bowels, being among the earliest symptoms. I have never seen nor heard of any distinctive rash being visible, and the fever, endemic, and occurring in sporadic cases, seems usually to have little or no contagious or infectious properties.

"Exposure to the sun's rays, heat, and intemperance have been generally observed to be the exciting causes; deficient drainage, sewerage in abeyance, overcrowded and dirty dwellings, predispose to the disease, and perhaps nourish the germs until a convenient nidus is encountered for their development. The prolonged and painful droughts to which this island is subject, at times barely leaving water enough to the poorer classes to support existence, must necessarily work much against sanitary measures on a large scale, and against cleanliness, &c., on a smaller.

"This group of diseases represents 14·0 per cent. of the total cases, 28·5 per cent. of the total days' sickness, and 50 per cent. have been sent for hospital treatment. One case which set in with considerable violence, and was at once removed to hospital, turned out eventually a case of small-pox, an isolated case, as it fortunately afterwards proved, but acting on the hint, vaccine lymph was forthwith

* Surgeon Stephen Bowden, M.D.

with procured from the National Vaccine Establishment in London, and twenty persons vaccinated, but without effect in any one instance. It was the only case of purely exanthematous disease that occurred.

"The cases returned as febricula averaged about six days' sickness; many on their accession made it doubtful to what extent the disease would go; some favourable critical change usually took place shortly, brought about by nature or art, and left the patient comparatively convalescent."

There were twelve cases of primary fever in the Psyche, one of which proved fatal. Of the total number of cases, ten are classed as febricula, one as continued, and one as remittent. The fatal case occurred in the person of a stoker, who was placed on the sick-list on the 11th of May, when the vessel was lying in Malta Harbour in Dockyard Creek, being at the time under repair. He complained of giddiness, languor, pain in the epigastrium, and slight diarrhœa. He had had slight rigors during the night; the pulse was 110, the tongue furred and red in the centre; he was discharged to Malta Hospital ten days after his admission to the sick-list, at which time the purging was frequent, and there was pain with gurgling in the iliac regions. The symptoms in hospital increased in severity; the abdomen became tympanitic, the tongue cracked, dry, and glazed; sordes covered the teeth, and he was delirious, and expired on the seventh day after his admission. No post-mortem examination of the body appears to have been made, but there can be little doubt that the case was purely one of enteric fever, although no remark is made as to whether any eruption was present or not.

There were six cases of primary fever in the Racer; they are all classed as continued, the majority of them being somewhat prolonged cases of febricula occasioned by insolation, and other kinds of exposure. The average duration of each case on boardship was ten days.

In the Resistance there were eleven cases of primary fever, all classed as remittent, and each case on an average being between fifteen and sixteen days under treatment. Nine of the cases occurred in the Lady quarter of the year, when the vessel was at the Piræus; they are said to have been well marked, and in two instances to have been severe. Quinine was given in the early stage of the fever to all, and was attended with beneficial results. In three cases sub-acute rheumatism followed; and in one, neuralgia of the testis.

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There were thirty-seven cases of primary fever in the Royal Oak, two of which proved fatal. During the first six months of the year, when eighteen cases of what are classed as continued fever occurred, the vessel was at Malta, Cephalonia, and Gibraltar, but during the great part of the time at Malta. Of the fever cases which came under notice during that period, the staff surgeon* says:—

"No febrile attack occurred in January or February. Two appeared in March; three in April; eight in May, and five in June. In none of these cases did typhoid symptoms make their appearance except in one, the last placed on the sick-list, in which the symptoms were somewhat suspicious; but he was sent to hospital on the second day of attack, before the type of fever was well developed. The diarrhœa and early appearance of nervous symptoms were unfavourable, but I have no further knowledge of the case. The other cases of fever were either mild synocha, or of a kind scarcely meriting more than the name of ephemeral. Two only were followed by rheumatism. One case seems to have been directly excited by heat and exhaustion, with possibly foul air from the coals in the stokehold, on the passage to Gibraltar. The symptoms were, for a few days, alarming, and threatened to become typhoid, but they speedily passed off. This was one of the cases followed immediately by rheumatism. Other two cases seem to have arisen, in great measure, from exposure during the passage to Gibraltar. In one of these it was a second attack, and complicated towards the end with chronic hepatitis, with which he had been on the sick-list at the end of last year. In the other the attack was smart but short, attended by extreme heat and delirium, with a long convalescence. The state of the ship at this time was not so favourable to health as just previously, there being increased numbers below, and other occasional unfavourable circumstances. These, with a rising temperature, and consequent diminished power of the internal air, and chills on going on deck, were, in my idea, sufficient to account for most of these febrile attacks. If the last case entered on the sick-list was of the true typhoid type, it then becomes a question whether it was transmitted by direct descent through other cases, not exhibiting any typhoid symptoms, whether it was caught by contagion on shore, or originated from causes inherent to the ship. The nearly entire absence of fever from the ship for over two months militates against the former idea, and it would come to be placed under one or other of the two latter. Several cases of fever, not severe, occurred amongst the junior officers of the gun-room, which might well have arisen either by transmission, or by the crowded state of the mess-place, combined with other causes. I exclude all geographical positions from the calculation, as being most improbable causes, excepting as to heat and moisture, and excepting the anchorage in the Grand Harbour at Malta, where it is possible the

* Staff Surgeon John Jack.

the effects of sewage and other noxious effluvia might have some effect. In speaking of the causes of such febrile disorders as have appeared during the period of this journal (1st January to 24th of June), I suppose they may have arisen not from one, but probably from a combination of causes; but that typhoid probably arises from some one specified cause, without which its peculiar symptoms could not appear."

In the Statistical Report of the Health of the Navy for the year 1866, notice was taken of the great improvement which had taken place in the general health of the crew of the Royal Oak, compared with the previous year, consequent on the increased admission of light to the mess places, improved ventilation, and a greater dispersion of the men over the decks, by which a larger amount of cubic space was allotted to each man. These changes in the conditions and internal economy of the ship had been attended by the most strikingly beneficial results, for

". . . . whereas the Royal Oak has during the greater part of her previous history, especially in summer and autumn, exhibited, on almost all occasions, a larger sick-list than most of the ships in company, she shows now, generally, the smallest."*

It will be interesting now to observe the circumstances which again conspired to depreciate the health of this ship's company. The vessel left Malta on two occasions, once to proceed to Cephalonia, and a second time to Gibraltar:—

"On both occasions of going to sea, her movements were sudden. The visit to Cephalonia was for the purpose of carrying a supply of provisions to the sufferers from an earthquake, which, about 6 a.m. of the 4th of February, had shaken down the greater part of the houses on the island, and there was much extra work for the men, laying in these provisions, coaling, and preparing suddenly for sea. On the latter occasion the presence of men-of-war was urgently required at Gibraltar in consequence of our relations with Spain. An extra supply of coals was necessary to steam full power the whole way, and much extra labour was thereby imposed. Not only so, but the main deck was crowded up fore and aft with coals for nearly a week, and the atmosphere of the ship was in every part impregnated with coal-dust. It was said to be impossible to get hammocks down, and the men, for a greater part of that period, slept in their clothes, wherever they could find a place to lie down. The stokers had also a greatly increased amount of exertion to undergo, in a higher temperature, and an increased number of stokers had to be extemporised from among the ship's company, keeping up full power

* Statistical Report of the Health of the Navy for the Year 1866, p. 67.

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power of steam, and the removal of the coals from the main-deck requiring a large number of extra hands. A strong head wind prevailed for several days, rendering our progress slow, and protracting the heavy drag upon all hands. The direct result of all this, especially in the latter instance, was a greatly increased amount of sickness generally, notably a greatly increased number of accidents, several cases of fever, one of which appeared to be from heat and over exertion in the stokehold, a severe case of bronchitis, sore-throat, rheumatism, and other affections. Indeed it seemed as if a great part of the ship's company had suffered a general deterioration of health, which was subsequently kept up by excesses on shore, so that nearly up to the time of my giving up charge, more favourable conditions for the invasion of disease existed than had been the case for six or eight months before.

No further changes were made during this period in the ventilation and internal arrangements of the ship. One hundred and thirty men continued to mess on the main-deck, but a considerable number of supernumeraries were received on board, and the total number borne was considerably over the complement. The supernumeraries consisted mainly of boys and young men, among whom were some junior officers. The numbers below were thereby considerably increased, as none of them were made to mess on the main deck, and a nearer approximation made to the previous conditions of the lower deck, and also in the gun-room. I have no doubt that a sensible effect on the general health was thereby produced, and especially in the last-named place, where several cases of fever occurred."

The remaining eighteen cases of primary fever in this vessel occurred between the 25th of June and the end of the year. They are all classed as continued, and the average duration of each case was nearly twenty-two days. Several were of the enteric type, with well-marked and characteristic symptoms. Two of these, one of which proved fatal, were contracted at Malta, and in another case which proved fatal the source of the infection was Spezzia. The fatal case contracted at Malta occurred in the person of a Maltese, a sail-maker's mate, who was placed on the sick-list with diarrhœa and great debility on the 24th of June, the day on which the vessel left Malta for Hyères. The skin felt cool, but the pulse was 120, and the tongue much furred. He had no abdominal pain. On the fifth day after his admission to the sick-list the purging continued, but there was still neither abdominal tenderness, eruptions, nor iliac gurgling. The tongue was dry with a brown fur, and the teeth were covered with sordes. No improvement at any time occurred in his symptoms, and he died on the morning of the ninth day after his admission to the sick-list. On account of the heat of the weather, it was not deemed advisable to make a post-mortem examination

examination of the body. The officer* who was at this time in medical charge of the Royal Oak makes the following remarks on this case:—

"The deceased being a married man, and residing at Vittoriosa, always slept on shore, and frequently did his duty of sailmaking at the dockyard. He consequently came but little under the notice of the medical officer of the ship. Although when he came on the list he reported that he had had looseness of the bowels for three days only, I have since been informed by some of his countrymen that he had been unwell for some time previously, and had continued to do his duty without applying for medical assistance. It appears to me that he succumbed to the force of the fever-poison before the more characteristic signs of typhoid fever had time to develop themselves. The diarrhœa at no time was excessive, nor did this appear to be the cause of the extreme debility. The stools were not characteristic of typhoid fever, and it was not deemed necessary to restrain the diarrhœa by astringents; no rose-coloured spots were noticed, nor, till the day previous to his death, was tenderness noticed in the region of the right iliac fossa. The head symptoms were at no time urgent."

The other fatal case contracted at Spezzia was placed on the sick-list on the 15th of September. It occurred in the person of a gunner of the Royal Marine Artillery, a very tall thin young man, who had not been out of the ship since the 11th of August, when he spent nine hours on shore at Spezzia. On presenting himself he complained of looseness of the bowels, which he stated he had had for two or three days previously. No abdominal pain nor febrile symptoms were noticed. He was ordered an astringent mixture, and on the following day the diarrhœa had ceased, but he complained of giddiness and weakness, and in the evening febrile symptoms set in. On the third day there was hesitation in his speech, and deafness, and on the fourth day there were several suspicious rose-coloured spots on the chest and abdomen. On the seventh day there was abdominal tenderness with tendency to tympanitis, which on the following day was considerable, and in the afternoon he somewhat suddenly expired.

The remainder of the cases of primary fever were mostly of an ephemeral character.

There were six cases of primary fever in the Tyrian, mostly

* Assistant Surgeon, E. J. Sharood, M.D.

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mostly of an ephemeral character, and calling for no observations.

In the Victoria there were thirty-eight cases of primary fever, thirty of which were contracted during the first five months of the year. Fourteen of these are classed as continued, and sixteen as febricula. All the latter cases were of an ephemeral character, occurring at different times and in several instances partaking of a catarrhal nature, the febrile excitement terminating in profuse diaphoresis. In a few of the cases, notwithstanding the absence of any well-marked symptoms, the convalescence proved exceedingly tardy, and for weeks considerable debility continued. Six of the cases exhibiting continued symptoms, marked by much depression, were sent to hospital. One of these proved to be a severe case of enteric fever, but all recovered. In one case in which the symptoms were at first mild, pneumonia supervened.

The remaining cases of primary fever in the Victoria do not call for any comments.

There were four cases of primary fever in the Wizard, one of which was of the enteric type, and of considerable severity. It appears to have been contracted at Khania, in Crete, with reference to which place the medical officer* of the vessel says:—

"The only case of typhoid fever on the list occurred during our stay in Crete; it was probably contracted in Khania, where all the conditions for its production superabound.

"Khania harbour is almost completely land-locked, and serves as a reservoir for the sewage of the city of Khania, which has been accumulating in it for many centuries. The water in the mole is turbid, stinks when agitated, and in the summer months offensive effluvia are given off, which, during the continuance of the sea breeze, pervade the whole town and prove a most fertile source of typhoid fever and dysentery, which are always endemic. The quantity of putrefying animal and vegetable matter held in suspension by the water is so great that the hawsers used for mooring ships become covered with a thick deposit of offensive slime in less than a week.

"Khania is a most sickly place, and should be avoided by ships of war during the summer months. Paleo-Suda, about two hours' sail distant, is a healthy and safe anchorage, where provisions and vegetables may be had in sufficient quantity."

Intermittent

* Assistant Surgeon Donald MacIver, M.D.

Intermittent Fever.—There was a reduction in the ratio of cases coming under this head, compared with the preceding year, equal to 4·5 per 1,000. The vessels that suffered most were the Cockatrice and Endymion. There is no difficulty in accounting for the number of cases in the former vessel, her station in the Danube exposing her men very much to the influences which induce the disease; but there is more difficulty in accounting for the Endymion so greatly exceeding all the vessels of the squadron, with the exception of the Cockatrice, in the number added to the sick-list with this form of fever; and no solution of the difficulty appears in her returns. She was for some time on the coast of Syria, but not longer than other vessels which enjoyed, either comparatively or altogether, an immunity from the disease. In the Cockatrice, the tertian form of ague prevailed.

Small-pox.—There were two cases of small-pox in the Arethusa. The first was that of a young officer, who appears to have contracted the disease as the result of a visit to the Resistance, which had arrived from the Piræus with a case of small-pox on board. The disease was modified by previous vaccination. The other case was contracted at Malta; no information is given with reference to previous vaccination, or otherwise. Every precaution was taken to check the spread of the disease. No other cases occurred.

Three cases of small-pox occurred in the Caledonia:—

"The first occurred in the person of a healthy and smart corporal of Marines, who showed himself on the 12th of November affected with slight initiatory fever, and on the third morning a few variolous papules appeared about his face. He had been well vaccinated. As the ship left Naples on the 30th of October, and was at Syracuse from the 1st to the 7th of November, arriving in Malta on the 8th, it is obvious that Naples or Syracuse was the source of contagion. On the 14th of November, an able seaman presented himself with a few suspicious spots about his face, which speedily declared themselves to be variolous. He had experienced, he said, a little feeling of discomfort, but too slight to induce him to apply at the sick-bay. The third case, which was likewise modified, but more severe than either of the two others, occurred to an officer. He was seized with a brisk train of febrile symptoms on the 26th of the same month, and on the third day the eruption commenced about the face. Like the two former men, he showed evidence of having been well vaccinated. There can be very little doubt that these two first cases were infected either at Naples or Syracuse; the corporal had landed at both places, but the seaman at neither. The officer must have been infected by these cases; yet he had no communication what-

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ever with them, as they lived in the fore part of the ship, and were isolated as soon as presenting themselves; or it is quite possible that he may have caught the disease in a search he made about the 10th of the month for a person who formerly washed for him, and whose services he was again desirous of securing. This led him into the most filthy and badly ventilated locality in Malta. The peculiar nature of the contagious influence of variola occasionally appears to require no active existing case to develop its phenomena in subjects of great susceptibility. The germ appears to lurk in inactivity, and may prove conveyable in various media, until it fixes upon the constitution suitable to its development. Hence sporadic cases that we sometimes see on board ship, when great difficulty arises in our endeavour to trace the source of infection."

There were two cases of small-pox in the Resistance. In both cases the disease appears to have been contracted at Malta, where it was prevailing on shore at the time; and in both, the disease was modified, the men showing evidence of good previous vaccination.

Measles.—On Table VI., a case of measles appears in connection with the Ocean. It was, in fact, a case of roseola, accompanied with rigors and general febrile symptoms, which, however, speedily disappeared under appropriate treatment.

There were four cases of measles in the Royal Oak. They occurred in the month of October in four men, who first presented themselves with ordinary but severe catarrhal symptoms; viz., running at the nose, soreness about the eyes, a feeling of lassitude, and general pains, with slight febrile disorder. About the second or third day, a distinct rubeolar rash was observed, which lasted for three days, and then gradually disappeared. No mention is made of the probable source of the disease, which, however, appears to have been Gibraltar.

Diseases of the Brain and Nervous System.—There was an increase in the ratio of cases coming under this head, compared with the preceding year; but the invaliding and death rates were lower by one-half. Eighty-one cases altogether were entered on the sick-list, of which ten were invalided, and two died. Seven of those invalided were epileptic subjects. In both fatal cases apoplexy was the cause of death. One of these occurred in the person of a petty officer of the Endymion. He is said to have induced a predisposition

disposition to disease of the blood-vessels of the brain, by a long course of intemperance. No post-mortem examination of the body appears to have been made.

The other fatal case, returned as apoplexy, occurred in the person of a boy of the Victoria, who had only recently arrived on the station. The disease appears to have had more of the character of acute hydrocephalus than of apoplexy. He was delicate and weakly looking, and, on presenting himself on the 2nd of February for treatment, stated that during the few preceding days he had felt very giddy and faint, experiencing constant headache. He had no appetite for food, and suffered from occasional vomiting and tendency to diarrhœa. The pulse was small and feeble; the face expressive of much irritability, but the features were pale, and did not indicate vascular excitement. For a few days, there was a tendency towards the evening to slight feverishness and considerable restlessness, and, on the sixth day after his admission to the sick-list, he was drowsy, and the countenance had begun to assume a peculiar expression. He continued to refer pain to the head and limbs, and particularly to the thighs. On the afternoon of the 9th, he became restless, starting up occasionally, and complaining much of pain in the head, and also about the abdomen, where it was increased upon pressure. The pulse, however, was perfectly tranquil; there was no fever, and no abdominal distension. He showed great disinclination to be disturbed, and had decided photophobia, with contracted eyebrows. On the following day he was somewhat less restless, but very fretful. He would not reply to questions nor put out his tongue, merely crying fretfully when spoken to. There was a tendency to strabismus of the left eye. The eyebrows were firmly contracted, and the dread of light was very marked. The pulse varied during the day from sixty to eighty, and was soft and weak. Towards the afternoon, he fell into a state of semi-stupor, from which he could only with great difficulty be roused, when he merely gazed momentarily and vacantly around. On the 11th, the report of the surgeon of the ship is:—

"Passed a very restless night, moaning and tossing about. At the morning visit, equally fretful as yesterday. No paralysis of any of the muscles of the extremities, but twitching about the facial muscles noticed, with an increase of the convergent squint of the left eye. Pulse 80 this morning."

The obscure nature of the symptoms inducing the belief that disease of a very serious nature was in progress, he was

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sent on the same day to Malta Hospital, on admission to which Establishment the following notes of his condition were made:—

". . . is in a drowsy state, lying with his eyes closed, but is easily roused. When roused, however, he appears to be perfectly insensible to all questions put to him. Lies with his knees drawn up towards his abdomen, and pressure on the abdominal parietes appears to cause him considerable pain. The temperature generally is lower than natural. His pulse is small and feeble, in frequency, 80. Right pupil slightly dilated. There is no heat of scalp; occasionally, when roused, utters painful cries. Urine and stools pass involuntarily; does not vomit; slight squint of left eye."

He remained in this condition quite unconscious, until the 15th, when he expired. The report of the post-mortem examination is exceedingly meagre.

"On opening the skull, the entire surface of the hemispheres was found much congested, and all the ventricles were distended with serum. The other organs of the body were healthy."

A case of sunstroke occurred in the person of an officer of the Ocean, who was affected while walking down to the ship at Malta in the forenoon, in the month of May. He soon rallied under the application of cold douches to the head, and the administration of diffusible stimulants. The attack was followed by severe and obstinate constipation.

Twenty-two cases of delirium tremens were under treatment during the year. Of these, three occurred in the persons of subordinate officers; one, in a warrant officer; nine, in petty officers; one, in an able seaman; four, in stokers; one, in a bandsman; one, in a Marine; and in two instances the ratings of the persons affected are not given.

Diseases of the Organs of Respiration.—There was a reduction in the ratio of cases coming under this head, compared with the preceding year, equal to 36· per 1,000 of mean force, and in the invaliding rate to 3·4 per 1,000; but there was a considerable increase in the death rate, almost all the mortality being caused by pulmonary consumption. A discrepancy will be observed with reference to the returns under the head of phthisis and hæmoptysis in Table I., the numbers invalided and the deaths from these diseases being greater than the number of cases entered on the sick-list. The cause of this discrepancy, which frequently occurs, was fully explained in the Statistical Report of the Health of the Navy

Navy for the year 1866, and has also been remarked on in previous Reports.

The vessels which suffered most from catarrhal affections were the Caledonia and the Victoria. They were, for the most part, however, of a trifling character, although, in some instances, they laid the foundation of serious disease. The surgeon of the Caledonia remarks, under the head of catarrh: —

"As usual on board ship, the great bulk of cases of indisposition occurring were of a nature conveniently classified under this head. In several of the cases slight febrile phenomena accompanied the local manifestations, and possibly some few of these had a strong claim to rank under the ephemeral fever category; as, however, irritation of the air-passages existed, I considered it better to retain them under the above heading. One of the catarrhal cases when under treatment for a lengthened period showed symptoms that gave rise to suspicion that tuberculosis existed; as time advanced it became too evident that such was the case, the fact being corroborated by the physical signs and general symptoms. He was sent to Bighi Hospital, whence he was subsequently invalided."

Diseases of the Heart and Bloodvessels.—There was a reduction in the ratio of cases coming under this head, and in the invaliding rate, compared with the preceding year, but the death rate was higher. Of twenty cases of functional and organic disease of the heart, eight were invalided, and four died.

A fatal case of heart disease occurred in Malta Hospital in the person of a petty officer, who when placed on the sick list on the 17th of June, stated that for three weeks previously he had been suffering from cough, dyspnœa, and pain in the left side of the chest, extending to the shoulder, and down the arm. He, however, continued at duty until at length he was compelled to apply for assistance. On examination of the chest considerable dulness was found over the lower lobe of the left lung, and an interrupted rubbing sound discernible over five or six square inches to the right of the left nipple. The heart was pulsating strongly and rapidly, and there was throbbing of the carotids, and a loud friction sound, systolic and diastolic, was heard over the apex of the heart. He stated that he had never had rheumatism; but that ten years previously, while serving in China, he had had a somewhat similar illness, since which he has always experienced some cardiac excitability. He admitted that he had been a hard drinker, and that he had had syphilis several times.

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He suffered much from dyspnœa and cough, which were very troublesome, and most severe at night time. He had no pain over the region where the friction sound was heard, but the pain in the shoulder and arm was very severe and constant. There was a remarkable huskiness of the voice, the countenance was pallid, and expressive of much uneasiness; the pulse was 110, and the tongue very much coated with a yellowish fur. He was under treatment for some time in the British Seaman's Hospital at Constantinople, but without benefit, and was finally, on the 9th of July, sent to the Royal Naval Hospital at Malta. On his arrival there, on the 15th of the same month, the following note of his case was made:—

"Impulse of heart greatly increased; rhythm exaggerated; first sound prolonged, and occasionally attended with a loud systolic bruit heard at the left apex. Sounds are heard over an unusually large space. Pulse 120, quick and full, but soft. Œdema of lower extremities present. Bowels kept open by medicine. There is some crepitation and pectoriloquy about the lower two-thirds of the the right lung, and also about base of left. Respirations, 40. Has cough, slight expectoration, and gonorrhœa. Urine of high colour, sp. gr. 1·025; no albumen.

On the 2nd of August the bruit at the apex was said to be "now double," and there was steadily increasing œdema of the lower extremities. On the 3rd he had a severe paroxysm of orthopnœa, and in the evening he died somewhat suddenly. No examination of the body appears to have been made.

A serjeant of Marines of the Endymion presented himself, complaining of dyspnœa and palpitation of the heart, both much increased on any exertion. He stated that until a few days previously he had felt nothing wrong, and had enjoyed good health until that time. On examination, the physical signs were found to be, a heaving impulse felt over a large surface of the cardiac region; bruit de souffiet, denoting aortic regurgitation; strong pulsation in the arteries of the neck, and the base of the lungs very much congested. Under the treatment to which he was subjected he derived much relief, but the physical signs continuing unchanged, he was sent to Malta Hospital on the 20th of March, where he died on the 25th of the same month. On post-mortem examination of the body the pericardium was found to contain more fluid than natural. The heart was greatly hypertrophied, and the aortic valves thickened and rough, the frænum between two of them was obliterated, so that they could

could not close properly, and allowed regurgitation. The aorta about the sinuses of Valsalva was thickened, and its internal coat roughened. The liver was in a state of fatty degeneration.

A Marine of the Ocean, who had recently joined the vessel, and had only been on the sick-list once for a few days for dyspepsia, whilst taking his supper on the lower deck, suddenly fell senseless, and was immediately taken to the sick bay, where he died five minutes afterwards. On examination of the body after death the following appearances were recorded:—

"The general appearance of the body was that of a robust state of health. The stomach contained about a pint of partially digested food, but was healthy, as was also the whole of the alimentary canal. On opening the chest, the pericardium was found covered with fat, and containing about two ounces of serum. The heart was removed from the body, and the right vessels found filled with venous blood. The weight of the heart was sixteen ounces and a half, and it was almost twice its natural size. The right auricle and ventricle were much enlarged, soft, and flabby; the left ventricle preternaturally thick, and the columnæ carneæ immensely developed. The aortic valves were thickened, and contained cartilaginous nodular deposits. The lungs were found to be generally congested, the congestion having evidently been produced before death."

A stoker of the Wizard, whilst in the act of rowing in a racing galley at Malta, suddenly died. Previous to his death he did not complain of sickness, nor did he exhibit any outward signs of disease. The following report of the post-mortem examination of the body is by the medical officer of the vessel:—

"There were no bruises nor other marks on the surface of the body. On opening the cavity of the chest, the lungs were found to be healthy. The pericardium was distended, and filled with blood; the right auricle of the heart was ruptured close to the auricular appendage, and its wall was very thin and diaphonous. The substance of the heart was flabby, and the entire organ was enlarged. There was no valvular disease, neither was there any obstruction in the large vessels. On examination of the abdominal cavity, the liver was found to be enlarged, and, on section, its substance was of a pinkish colour, and granular, which condition was due to amyloid degeneration. The nervous system was not examined."

Diseases of the Alimentary Canal.—There was a reduction in the ratio of cases, and of mortality, under this head, compared with the preceding year, but the invaliding rate was higher. Of 426 cases admitted to the sick-list, two were

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invalided, and one died. Diarrhœa was much less frequent in the squadron than during the preceding year, and although in some of the Italian towns cholera is said to have been prevalent, no cases occurred in any of the vessels of the force.

There were eighty-two cases of diarrhœa in the Arethusa; seventy-three of these occurred in the Michaelmas quarter of the year, in the form of an epidemic, when the vessel was at Spezzia. Some of them were of considerable severity, although their average duration on the sick-list did not exceed four or five days. Remarking on these cases, the surgeon* of the vessel says:—

"During our first stay at Spezzia an epidemic of diarrhœa broke out among all our ship's company, and among the ships of the squadron. We felt considerable anxiety about the disease, as cholera prevailed over all Italy in a more or less degree, although not at Spezzia. To show the suspicious nature of these attacks, one case may be instanced, occurring in the person of a stoker, who was suddenly seized with looseness of the bowels, cramps of the body, rice-water evacuations, and prostration of strength approaching collapse, which continued for three hours. The pulse was small and rapid, and the tongue was cold. He was enveloped in three or four thick blankets, stimulants, and strong astringents given him, and under this treatment the attack was cut short in about six hours. He continued weak and languid, with some fever, for a few days, and remained debilitated for a fortnight after the bowels were restored to their normal condition. Subsequently, he was placed on the sick-list with a chronic form of diarrhœa, and with depression of spirits, his general health remaining low. He recovered ultimately, and although a pale delicate-looking man, carries on his duties as usual. . . . . The type of the majority of the cases seemed to me to be of a congestive nature, the patient first complaining of tormina, tenesmus, frequent calls to stool, the discharges being either watery or mucous. Pain on pressure was felt over the epigastrium, and frequently the tongue was furred and reddish. Three, four, and six days were generally sufficient for their cure."

The cause of the epidemic is said to have been the use of water procured from the shore for drinking and cooking purposes. On the second day after the arrival of the vessel at Spezzia, the tanks were filled with water from the shore, and on the following two days cases of diarrhœa presented themselves in great numbers. The use of the water was at once put

* Surgeon Henry Harkan.

put a stop to, and distilled water only employed for drinking and cooking purposes, and the epidemic ceased.

"The supply of water, at all events in summer, is bad. One small river or rivulet runs from the mountain through the suburbs, and the town towards the sea. There is no protection to keep it clean. Outside the town, lines of women washing clothes are daily seen, standing in the rivulet, and there immersing the clothes. The water running on carries its first contamination further down, where it may receive more from those who do not wish to go outside the town. Being open in its course, every species of dirt can be thrown into it. By making a winding course it partly filters itself from the contamination of the first set of laundresses; a broad alluvial bottom, sloping banks, and rushes entangling and purifying its waters. The high and prolonged heat of the summer rendered the amount of water more scant than usual, and probably more full of organic and inorganic substances, which rendered it so irritating to those who drank it."

In the Caledonia, in which there were seventy-five cases of diarrhœa, the medical officers appear to attribute the disease to other causes than the use of the water supplied from the shore at Spezzia. Fifty-six of the cases occurred during the Michaelmas quarter of the year, and with reference to them the surgeon says:—

"The majority of our cases occurred during our visit to Spezzia, and, no doubt, the exciting cause was in a great measure the combined influence of high diurnal temperature; excesses committed when on leave; the use of acid wines, and spirits, to which they were quite unaccustomed. In addition to these influences, there appeared to exist some atmospheric condition, exercising a pernicious effect upon subjects otherwise in sound health. The dejections were frequent, copious, and feculent; there was tormina, with considerable irritability of stomach, and in some of the cases a tendency to collapse. The evacuations, however, in no instance resembled those of malignant cholera, neither were cramps of the extremities observed, nor were the discharges at all of a dysenteric character. The disease was of short duration, the cases averaging a very few days under treatment."

Another medical officer* of this vessel remarks:—

". . . . . The great number of additions is owing to the prevalence of diarrhœa whilst we were lying in the Gulf of Spezzia. There were thirty-three cases, which, from the violent pains and persistent looseness, required suspension from duty, but they were quickly relieved. In addition to those placed on the list, about fourteen presented themselves daily at the sick bay from the 10th to

* Assistant Surgeon John Buckley.

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to the 24th of August, complaining of violent cramps and looseness. The day after leaving the Gulf, for a short cruise to the island of Elba, there was a marked cessation of the diarrhœic symptoms. The greatest number (twenty-eight) presented themselves on the 12th, after which there was a slight decrease; but again on the 18th there was a marked increase, about thirty presenting themselves for medicine. The attacks seemed to be owing principally to overloading of the stomach, and were characterised by excessive prostration, quite out of proportion to the duration of the attack, and very violent cramps. As general leave was granted to all the ships of the squadron, I attribute the prevalence of diarrhœa more to the men having partaken too freely of the wines of the country, and being unaccustomed to Italian cookery, than to any specific cause. Whilst lying here, we watered from the shore, and this was at first supposed to be the cause of the looseness, but it was found on being tested to be quite pure, and free from any vegetable deposit. The men of the 'general leave' class partake of the pleasures of the shore in an eager and voracious manner, on account of the few occasions on which they enjoy them. This was shown by the symptoms being more quickly relieved by an emetic than by the administration of opiates and astringents. The town is a collection of narrow streets, situated on a plain surrounded by high hills. It was in a most unhealthy state at this time; heaps of mud lay festering in the sun, in the narrow, overcrowded by-streets, and the air in many of the poorer streets was loaded with the odour of fetid matters, but for some unaccountable reason it had hitherto escaped the visitation of cholera, which was creating great ravages in the neighbouring seaports, as well as inland. Great alarm was created about this time, both on shore and in the squadron, by the sudden death of six persons at a neighbouring village bordering on the Gulf, about one mile from the town: they presented all the features of a choleraic seizure, blueness of the extremities, and collapse, with fatal termination a few hours after the commencement of the attack. Leave to officers and men was stopped for a few days, but the alarm quickly subsided, no fresh cases having occurred, and it was discovered that the victims had partaken freely of putrid eels."

Although it is quite possible that in the Caledonia the epidemic of diarrhœa may have been dependent on other causes than the use of water from the shore, there seems every reason to believe that it was to the latter cause that the cases in the Arethusa were attributable, they having made their appearance simultaneously with the use of the water, and amongst men who had not left the ship, and did not go on shore for some days.

In Table IV., a death from diarrhœa appears in connection with the Hydra. It occurred in the person of an officer who had at one time been invalided for dysentery, and was subject

ject to occasional attacks of diarrhœa. The last attack he had occurred in the month of August, and the fatal event seems to have been induced by great mental depression, and when diarrhœa set in, by loss of blood from large hæmorrhoidal tumours.

The other cases of dysentery and diarrhœa occurring in the squadron were not of any importance.

Diseases of the Liver, &c.—Thirty-five cases of disease under this head were entered on the sick-list, of which two were invalided, and one terminated fatally. The fatal case occurred in the person of a non-commissioned officer of Marines of the Psyche, who was placed on the sick-list on the 22nd of November 1866, with symptoms of hepatitis. A fortnight afterwards he complained of pain in a particular point over the left lobe of the liver, attended with febrile accessions, alternating with rigors. He was discharged to Malta Hospital on the 22nd of December, when the following note of his condition was made :—

"On admission complains of hepatic pain, and great debility, which is increasing. Has been under treatment for two months, first of all for constipation; he is rapidly becoming emaciated, has no appetite, and cannot sleep at night; the skin and conjunctiva are tinged yellow; he cannot bear pressure over the hepatic or epigastric regions; has febrile attacks towards the evening; pulse about 80. On the 31st the report was, pain across the bowels, which have been open twice; pain also in the hepatic region; looks fatigued.—8 p.m. Is suffering from severe dyspnœa; pulse almost imperceptible; surface extremely cold.—11 p.m. collapse has increased, respiration becoming more difficult.—1st January: is perfectly sensible, but is gradually succumbing; orthopnœa present. —2.30 a.m. expired."

The following report of the autopsy is by the Deputy Inspector General* of the Hospital :—

"Body generally emaciated. On opening the abdomen a small abscess was exposed, occupying the front of the left lobe of the liver, its seat being marked by the presence of a dark patch on the surface. On removing the organ, a very extensive abscess was found occupying a great portion of the right lobe; its surface was ragged, and it had evidently burst into the peritoneum."

Diseases of the Genito-Urinary Organs.—There was an increase

* Deputy Inspector General William T. Domville, M.D.

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increase in the ratio of cases coming under this head, compared with the preceding year, but the invaliding rate is much lower. All the increase in the ratio of cases was attributable to the greater prevalence of primary syphilis among the men. The vessels that suffered most from venereal diseases were the Arethusa, Caledonia, Endymion, Ocean, Prince Consort, Royal Oak, and Victoria.

There were seventeen cases of primary syphilis, two of secondary syphilis, and nine of gonorrhœa in the Arethusa, the great majority of which were contracted during the Christmas quarter of the year. With respect to syphilis, the surgeon remarks:—

"On the 28th of October the Arethusa left Malta for the Piræus of Athens, to be stationed there for the winter, and arrived on the 31st. From that period to the 31st of December, as may be readily expected, the prevalent diseases were connected with the chest, rheumatism, and those caused by cold winds and weather, which prevailed much and severely during the two months. But another disease became prevalent latterly, which was very annoying in every respect,—syphilis; during the first month no cases were contracted on shore at the Piræus, but in December a large number of men-of-war of the different European nations arrived to do honour to the King and Queen of Greece on their arrival. About 3,000 foreigners of all kinds were assembled in the small harbour, and had to remain for many weeks; the disease then began to appear. The Government inspecting medical officer stated, that the disease was not contracted at the permitted houses, but from a secret set, whom the police could not discover. Judging from the freedom of the town for the first few weeks from the disease, it would seem that such was the case; and a trade having lately been set up for many of the impoverished refugee Cretans, it was suspected that they were the contaminating source. The syphilitic sores presented were all of the primary, soft, non-infecting character, inflammatory, excavated, and superficially sloughy; some showed a fissured form on the internal surface of the prepuce, with a small sore on or at the base of the frænum. Most of the cases are under treatment, and are progressing well."

Nine cases of primary syphilis, one of secondary syphilis, and five of gonorrhœa occurred in the Caledonia, and in reference to them the surgeon remarks:—

"On joining the Caledonia in May, I found four cases of syphilis under treatment, the disease having been contracted at the home ports. Such a small number of venereal cases in a ship just come out from England is surprising, when our former experience is recalled. The great reduction in the number of these cases must be

be attributed to the institution of the system now in operation, and which it is to be hoped will soon lead to a wider extension of it. Of the nine cases subsequently added, five were affected in England, but the patients concealed the fact until our departure from Gibraltar, no doubt afraid of losing the privilege of shore-visiting. None were cases of indurated chancre; merely simple ulceration. Of secondary syphilis only one case occurred. The patient, when in England, had a small indurated sore, and after being a short time in the Mediterranean, a scaly copper-coloured eruption appeared upon the forehead, scalp, trunk, and extremities, which gradually disappeared under treatment. The cases of gonorrhœa were few in number, and by no means severe. In addition to the cases entered on the list, a few presented themselves with such mild symptoms that it was unnecessary to suspend them from duty; an early treatment readily arrested the discharge. Considering our visit to Naples and other ports, it is surprising the fewness of these cases; whether the authorities in Italy and Sicily are more vigilant than formerly, I am unable to say, but certain it is, that we leave their ports with a much smaller number of victims to this malady than we did in former years. A circumstance that must materially aid in diminishing the number compared with former days, ought not to be overlooked; I allude to the moral improvement that has, of late years, been gradually taking place in the general conduct of our seamen, noticed especially when on leave. Drunkenness, a fertile aid in the propagation of syphilis, is happily by no means so general amongst our liberty-men as it was a very few years ago. At Malta, beyond an occasional slight gonorrhœa, the disease is rarely communicated to any of our men."

There were ten cases of primary syphilis, three of secondary syphilis, and one of gonorrhœa in the Endymion. The majority of the cases of primary disease were contracted at the Piræus. The surgeon makes the following remarks on the treatment of this disease:—

"The mercurial mode of treating primary syphilis is the only one that I have followed for several years, and from the conclusions that I have formed on the subject, I would consider that I was trifling with a patient's health if I adopted any other in the present state of our knowledge.

If the controversy between the advocates of the mercurial and non-mercurial plans of treatment did good in preventing the misery that resulted from the abuse of this mineral at the time, it is counterbalanced in the present day by the evil that results through discarding it so much from modern practice. Without any settled ideas on the subject, I followed both plans indiscriminately for some years, with the sole wish of arriving at some satisfactory conclusion for myself, selecting cases as similar as possible for the purpose. The mercurial plan of treatment had the decided advantage in preventing the secondary effects of the disease. For the last fifteen

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years I have steadily prescribed the use of mercury in the treatment of primary syphilis with the greatest advantage.

"The old plan of endeavouring to get the system under the peculiar effects of mercury as quickly as possible is, in my opinion, quite erroneous, and opposed to the practice which I have found most successful. Coinciding to some extent with the opinion of Hunter, that if the first set of absorbent glands through which the venereal virus has to pass to get into the system could be completely occupied by mercury previous to the absorption of the syphilitic poison, the latter would become neutralized in the glands and rendered harmless; I so far follow his practice in this respect, that I order the mercurial ointment to be applied to the inguinal region for some days, with the hope that it may have the desired effect. The result has been most satisfactory; looking back for a long period of years, I can trace several cases of a most formidable nature thus treated, in whom not a trace of the disease has since manifested itself.

"As the introduction of mercury into the system for a lengthened period cannot be so well regulated in this manner as by the mouth, two grains of Pil. hydrarg., or three grains of Hydrarg. c. cretâ are given three times daily until its specific effects are produced in the mouth. The introduction of mercury is continued for fourteen days at the least, and is often extended to twenty-one. Severe salivation is avoided by carefully watching the effect produced on the mouth, and diminishing the frequency of the dose, or intermitting it for some days if requisite. I always combine the mercurial preparation with antimonial powder and the compound powder of ipecacuan, as I believe they tend to diffuse the mercury through the system more equally, than when it is given by itself. I also believe that the saline preparations of mercury may produce severe salivation and pass out of the system without producing any effect on the specific poison, and this is a strong reason against the administration of the preparations of iodine, at the same time that mercury is given, with the intention of destroying the syphilitic virus. As this is not a place to enter into many of the interesting details of syphilis and its treatment, I have confined my remarks to a general outline of the subject; at the same time I consider it only right thus far to call attention to a subject of so much importance to the Navy, when I find such a large amount of secondary syphilis existing among the crew of this ship.

Considering that much valuable information on this subject would be gained by a knowledge of the precise mode of treatment adopted in each ship in certain cases, with the ultimate result of the entire number so long as they remained in the ship, or could be afterwards traced, I have added a list, in a tabular form, of the cases that occurred in this ship. The headings embrace all the information requisite to form a conclusion on the subject, and those cases only are included where the patient contracted the disease for the first time in his life.

TABLE

TABLE showing the Number of Cases of Primary Syphilis treated in accordance with the Principles laid down in these Remarks.

Rating.	Age.	Entry.	Number of Days on which Mercury was given.	Species of Ulcer.	Whether Secondary Symptoms followed, or the contrary, up to the 31st Dec. 1867.	General Remarks. If attended with Bubo, Opened or Absorbed; Character of Secondary Symptoms.
		1866:				
Carpenter's Mate -	26	11 Nov. -	18	H.B.	No	Bubo; opened - - - 1st attack.
		1867:				
Ordinary Seaman -	22	29 Nov. -	14	S.U.	No	Nil - - - - - 1st „
Captain, Foretop -	29	23 Feb. -	18	H.B.	Yes	Orchitis; doubtful as to origin; 2nd „
Bandsman - -	22	17 May -	21	H.B.	No	Bubo; opened - - - 1st „
Cook's Mate - -	20	30 May -	14	S.U.	No	Nil - - - - - 1st „
Private Marine -	24	21 June -	21	H.B.	No	Bubo; opened - - - 1st „
Ordinary Seaman -	21	25 June -	18	S.U.	No	Nil - - - - - 1st „
Ordinary Seaman -	22	22 July -	25	H.B.	No	Nil - - - - - 1st „
		1866:				
Ordinary Seaman -	25	17 Nov. -	21	S.U.	No	Nil - - - - - 2nd „
Able Seaman - -	24	23 Nov. -	18	H.B.	No	Nil - - - - - 2nd „
		1867:				
Able Seaman - -	24	10 May -	14	H.B.	No	Nil - - - - - 3rd „
Stoker - - -	25	9 May -	25	S.U.	No	Secondary symptoms; ulcus - 3rd „
Midshipman - -	18	11 Dec. -	–	S.U.	–	- - - - - - 1st „
Midshipman - -	22	12 Dec. -	–	H.B.	–	Bubo; opened - - - 2nd „

Note.—Only two species of ulcer are here recognised:—

H.B. signifies ulcer with hard base; the Hunterian chancre.
S.U. „ superficial ulcer, and includes all those that extend below the superficial fascia, causing loss of substance.

In the Ocean there were six cases of primary syphilis, thirteen of secondary syphilis, and five of gonorrhœa. The majority of the cases of primary disease appear to have been contracted at Gibraltar. The surgeon says:—

"The value of the stringent surveillance exercised at Malta is well evidenced by the returns during the first quarter of the year

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when Her Majesty's ship remained moored in Malta Harbour, and daily leave was granted. Only one case, and that a soft non-infecting sore, soon healed by Lotio nigra, and not followed by any constitutional symptoms, was added to the list. Of the ten remaining from last year, all of whom were infected at Plymouth, two were discharged to Malta Hospital suffering from syphilitic cachexia.

"In the second quarter five cases with indurated sores were added, all of them infected at Gibraltar, a place where, judging from the specimens of the disease that presented themselves for treatment, the police regulations in connection with the inspection of the public women must be very imperfectly or slovenly performed. In my opinion, the disease was almost as prevalent and severe as in any of the home ports.

"Of the secondary or constitutional forms of the disease, many had contracted the infecting sore in former ships and on other stations, as at Trincomalie, the Cape of Good Hope, China, Japan, &c.; others declared they had never had a sore, and on examination no scar could be detected, whilst two or three only of those who had been on the sick-list in this ship manifested any signs. Rheumatism and ulceration of the tonsils were the most common forms, but psoriasis, lepra, tubercular eruptions, enlargement of the testicle, &c., were also treated. Of six discharged for hospital treatment, four were suffering from syphilitic cachexia, and one man was sent there twice with enlargement of the post-cervical glands and a deep excavated ulcer in the throat. In another case a rapid development of tubercle in the lungs was diagnosed to be the result of an attack. Mercury employed in moderation, and observing the usual restrictions, unless contra-indicated by constitutional debility, sometimes combined with, sometimes without, iodide of potassium, and a full nourishing diet, was found the most efficient remedy."

In the Prince Consort, in which there were seventeen cases of primary syphilis, five of secondary syphilis, and twelve of gonorrhœa, and in the Royal Oak, in which there were fifteen cases of primary syphilis, five of secondary syphilis and ten of gonorrhœa, most of the disease appears to have been contracted at Gibraltar, where the system of surveillance was so defective as to call forth much adverse criticism from the medical officers of the squadron. The surgeon of the Prince Consort says that its "Sanitary legislation in this particular seems weak;" and one of the medical officers* of the Royal Oak, in commenting on thirteen cases of primary syphilis and six of gonorrhœa, which occurred during the Christmas quarter of the year, remarks:—

"The next point I want to refer to is the very large increase in this Return of venereal disease. General leave was given to the ship's

* Assistant Surgeon Sharood, M.D.

ship's company at Gibraltar, on the 15th, 16th, 17th, and 18th of October, and again on the 10th, 11th, and 12th of November. The result of this was that nineteen cases of venereal disease—viz. thirteen of primary syphilis and six of gonorrhœa—were added to the list. When this is contrasted with the previous nosological returns of this ship while in the Mediterranean, a period of nearly four years, during which general leave was given at various ports in Italy, France, Spain, Sicily, Greece, &c., and that in those returns cases of primary syphilis and gonorrhœa rarely occur, it cannot fail to strike one that the sanitary inspection of prostitutes at Gibraltar is very imperfectly carried on."

There were thirty-two cases of primary syphilis, one of secondary syphilis, and eight of gonorrhœa in the Victoria. Twenty-three cases of syphilis were, however, in no way connected with the Mediterranean, they having been contracted at the home ports.

Diseases not Classed.—In the Statistical Report of the Health of the Navy for the Year 1866,* notice was taken of the prevalence of tapeworm in the Mediterranean squadron, and it was stated that, in all probability, full information on this point had not as yet been obtained. During the period for which the present report is rendered, fifty-six cases of worms were under treatment, and in fifty-five of these the entozoon was the tænia.

In the Caledonia only two cases of tænia were entered on the sick-list, although several others were under treatment. The surgeon† has the following remarks under the head of tænia:—

"It was found necessary to place on the sick-list two only, affected with this complaint, whilst receiving medicine for the expulsion of the parasite. Some few more cases occurred, but they were not entered in the sick-book. In every case the patient stated that he had been voiding during a few days back bits of the worm, and in the majority of the cases the patients had previously suffered from the same complaint. The kousso and extract of male fern were both tried, but the latter, in each instance, expelled large quantities, and left the patient for a longer period free from symptoms of the presence of the worm. The treatment that I have found most effectual in expelling these troublesome parasites consists, first, in clearing well the primæ viæ with a brisk cathartic, then causing the patient

* Page 88. † Surgeon J. G. T. Forbes.

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patient to fast several hours before bedtime, when a drachm of the fluid extract of male fern rubbed up with syrup and mucilage is administered. The following morning a mild dose of oil is given, when masses are usually voided at each evacuation. It will be seen by the following Table that three of the patients returned for medicine within the period of this journal (27th May to 31st December 1867).

Rating.	Age.	How long affected.	Previous Stations.	How often Treated.
Able Seaman - -	20	Two years - -	Mediterranean - - -	First occasion.
Able Seaman - -	25	Five years - -	China and Mediterranean -	Several times.
Able Seaman - -	23	Six months -	Mediterranean - - -	Three times on board Caledonia.
Able Seaman - -	42	Two months -	Mediterranean - - -	First occasion.
Leading Seaman -	25	Six years - -	Mediterranean - - -	Several times.
Ordinary Seaman -	20	Two years - -	Mediterranean - - -	Two occasions.
Armourer - -	27	Two months -	Mediterranean - - -	First time.
Stoker - - -	40	Two months -	Mediterranean - - -	First time."

The same medical officer who had previously been in medical charge of the Victoria from the 1st of January to the 27th of May, says of the prevalence of the parasite in that vessel :—

" Twenty individuals, during these five months, applied for medicine to expel tapeworm. Five of the number had previously had medicine on board here, which usually kept them from voiding fragments of the parasite for periods averaging five months. On inquiry I could not ascertain that former stations in any way influenced the occurrence of this affection, as the sufferers, in this respect, varied much, each station being represented. Neither could I discover any peculiarity in the habits of the affected, different from those who were exempted, except in the fact that no officer experienced any symptoms of the kind since the commissioning of the ship, unless, which is very improbable, they were deterred from some reason or other from admitting the circumstance. In addition to these twenty cases, I am fully persuaded that we have on board many men harbouring the parasite, some of whom may be ignorant of its presence, whilst others, not experiencing inconvenience, gave themselves no trouble about the matter. Probably a third

third description of men may be added, namely those who prefer purchasing drugs on shore to undergoing the form of applying at the sick-bay. I am informed, by a chemist at Malta, that large quantities of Holloway's and other quack medicines are annually sold to seamen in the fleet who read the advertisements with promises of speedy cures and illustrative cases, all of which they implicitly believe, and too often suffer in consequence.

"I still continue to give a preference to the male fern extract as a remedy against tapeworm. It never fails to expel masses of the parasite, but in a great majority of the cases the individual returns three or four months afterwards complaining that he has again commenced to void fragments, but that during the interval from taking the medicine until a few days previous to his present application, he experienced no evidence whatever of the return of his complaint. In my last journal I offered a few remarks on the uncertainty of the channel by which the parasitical germ reached the human intestines.* My subsequent experience has failed to trace any positive mode by which it arrives there. The more I consider the subject, the more does it appear to me that the ovum must find its way not through one channel, but probably through many, and that only in a limited number of intestines does it find a soil suitable to its fertilisation and development; just as we observe, in other diseases, that some men rarely escape when exposed to infections or contagious influences, whilst others appear exempt, let them incur every risk. My belief is that the greater attention officers pay to securing clean food, not eating uncooked vegetables, and avoiding the unclean fruit from bumboats, will aid, if not fully explain, their marked exemption from tænia, when so many of the crew serving in the same ship are affected."

The surgeon† of the Enterprise, in which vessel there were five cases of tænia, says:—

"Five cases of tapeworm were entered on the sick-list during the necessary treatment for the expulsion of the animal, though an equal number of persons have been treated without suspending them from their duties. Of the former, four of the entries were on account of the same individual, who had suffered before joining this ship; but in the remaining one, as well as the whole of the latter (if their statements are to be trusted), the complaint has originated in this ship. And of this I have but little doubt, in my own mind, as sufficient cause occurred during a portion of the time spent at Patras, in the consumption of fresh pork, which was cheap and of inferior quality, and several specimens which I examined were thickly studded with the trichina spiralis. I discovered accidentally on my return from leave of absence, that the ship's steward was (surreptitiously) serving

* Statistical Report of the Health of the Navy for the Year 1866, p. 89.
† Surgeon James Thomson.

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serving out this unwholesome food in lieu of the ration of fresh beef. Since that time, the latter end of February, no fresh pork has been admitted into the ship, though the cases alluded to have cropped up in succession, more especially during the last three months.

"Regarding treatment, I am in favour of the oil of male ferm, which I give in drachm and a-half doses, with an ounce of castor-oil after preliminary treatment, though I doubt if it be much superior to full doses of turpentine, the alvine action of which is secured by a proper quantity of castor oil. I have used both, and heard of nearly similar results, excepting that the oil of male fern in every case produced a good deal of gastric pain. Unfortunately, in a small ship, ocular demonstration in such cases cannot be had without much offensive inconvenience, and one is to a great extent dependent on the report of persons who also have not the means, if they had the will, of observing carefully the operation of the remedies employed."

The crew of the Royal Oak appear to have been much infected by the parasite. The staff surgeon was of opinion that it was contracted at Malta, where, he states, the troops also suffered severely from it.

In Table IV. a death from debility appears in connection with the Trinculo. It occurred in the person of the medical officer of that vessel, and there being no other medical officer on board, the actual cause of his death has not been ascertained. It appears that he suffered from sea-sickness in crossing the Bay of Biscay to such an extent as to cause great prostration and weakness, and that he was delirious for two days before his death. The vessel put into Ferrol with the view of obtaining medical assistance, but she was at once placed in quarantine, and no medical man could be induced to go on board. She then started for Lisbon, but the disease had a fatal termination on the same evening.

Wounds and Injuries.—Two men sustained fatal fracture of the skull by falling from aloft; and in one instance in which a man fell from aloft, death was occasioned by rupture of the diaphragm, and other severe internal injuries.

Two men were drowned: one fell overboard, and the other was found drowned at Spezzia.

An officer committed suicide by cutting his throat with a razor.

The total number of deaths was forty-three, being in the ratio of 8·9 per 1,000 of mean force, which is an increase, compared with the preceding year, equal to 3·5 per 1,000.

Invalided.

Invalided.— One man was invalided for the sequelæ of fever; ten for diseases of the brain and nervous system, of whom seven were epileptics; thirty for diseases of the organs of respiration, twenty-nine of whom laboured under pulmonary consumption; eight for functional and organic disease of the heart; two for diseases of the alimentary canal; two for disease of the liver; six for diseases of the genito-urinary organs; nineteen for rheumatism; four for the diseases of the bones and joints; five for diseases of the special senses; twelve for diseases of the skin and cellular tissue; twenty-two for dyspepsia and debility; ten for wounds and injuries of various kinds; and eight for hernia. The total number invalided was 139, which is in the ratio of 28·9 per 1,000 of mean force, being a decrease, compared with the previous year, equal to 12·7 per 1,000.

TABLE, No. 1.

SHOWING the Number of Cases of all DISEASES and INJURIES, and the Number INVALIDED and DEAD, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Continued and Remittent Fever	290	60·4	1	·2	14	2·9
Intermittent Fever	83	17·2	—	—	—	—
Small-pox	7	1·4	—	—	—	—
Measles	5	1·	—	—	—	—
Disease of the Brain	2	·4	—	—	—	—
Apoplexy	1	·2	—	—	2	·4
Insolation	1	·2	—	—	—	—
Epilepsy	24	5·	7	1·4	—	—
Paralysis	5	1·	—	—	—	—
Insanity	4	·8	2	·4	—	—
Delirium Tremens	22	4·5	—	—	—	—
Neuralgia	17	3·5	—	—	—	—
Vertigo	5	1·	1	·2	—	—
Inflammation of the Lungs and Pleura	50	10·4	1	·2	1	·2
Phthisis and Hæmoptysis	38	7·9	29	6·	11	2·2
Influenza and Catarrh	704	146·6	—	—	—	—
Cynanche	197	41·	—	—	—	—
Asthma	2	·4	—	—	—	—
Disease of the Heart, Functional and Organic	22	4·5	8	1·6	4	·8
Hæmorrhoids	9	1·8	—	—	—	—
Aneurism	1	·2	—	—	—	—
Disease of the Stomach and Bowels	3	·6	—	—	—	—
Dysentery	11	2·2	—	—	—	—
Diarrhœa	382	79·5	2	·4	1	·2
Constipation and Colic	30	6·2	—	—	—	—
Disease of the Liver	16	3·3	2	4	1	·2
Jaundice	18	3·7	—	—	—	—
Splenitis	1	·2	—	—	—	—

TABLE, No. 1.—Showing the Number of Cases of all Disease

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Dea	
Disease of the Bladder and Kidneys	9	1·8	2	·4	—	—
Syphilis, Primary	144	30·	1	·2	—	—
Syphilis, Secondary	39	8·1	—	—	—	—
Gonorrhœa	75	15·6	—	—	—	—
Orchitis	84	17·5	2	·4	—	—
Stricture	12	2·5	—	—	—	—
Incontinence of Urine, &c.	1	·2	1	·2	—	—
Rheumatism	338	70·4	19	3·9	—	—
Gout	2	·4	—	—	—	—
Disease of the Bones and Joints	46	9·5	·4	·8	—	—
Inflammation of the Eyes	64	13·3	4	·8	—	—
Amaurosis and Cataract	1	·2	—	—	—	—
Otitis and Deafness	27	5·6	1	·2	—	—
Erysipelas	19	3·9	-	-	2	·4
Scrofula	6	1·2	4	·8	—	—
Bubo (*Symp.*)	28	5·8	1	·2	—	—
Phlegmon and Abscess	1,392	290·	3	·6	—	—
Ulcer	347	72·2	3	·6	—	—
Psora	9	1·8	—	—	—	—
Eruptions, &c.	59	12·2	1	·2	—	—
Dyspepsia and Debility	232	48·3	22	4·5	1	·2
Scurvy	1	·2	—	—	—	—
Dropsy	7	1·4	—	—	—	—
Worms	56	11·6	—	—	—	—
Headache	22	4·5	—	—	—	—
Purpura	3	·6	—	—	—	—
Wounds and Injuries	1,387	288·9	10	2·	3	·6
Burns and Scalds	47	9·7	—	—	—	—
Hernia	17	3·5	8	1·6	—	—
Drowned	-	-	-	-	2	·4
Suicide	-	-	-	-	1	·2
TOTAL	6,424	1338·3	139	28·9	43	8·9

TABLE, No. 2.

[redacted]NG the Number of DAYS' SICKNESS from each DISEASE, and from INJURIES, [redacted]he Average Number of Men Sick Daily, with the Ratio per 1,000 of Force.

DISEASE OR INJURY,	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Continued and Remittent Fever	3,287	1,681	4,968	13·6	2·8
Intermittent Fever	661	-	661	1·8	·3
Small-pox	99	124	223	·6	·1
Measles	34	-	34	—	—
Disease of the Brain	15	5	20	—	—
Insolation	4	7	11	—	—
Epilepsy	144	70	214	·5	·1
Paralysis	98	36	134	·3	—
Insanity	32	75	107	·2	—
Delirium Tremens	131	34	165	·4	—
Neuralgia	77	-	77	·2	—
Vertigo	12	-	12	—	—
Inflammation of the Lungs and Pleura	1,140	179	1,319	3·6	·7
Phthisis and Hæmoptysis	693	604	1,297	3·5	·7
Influenza and Catarrh	4,175	274	4,449	12·1	2·5
Cynanche	1,202	178	1,380	3·7	·7
Asthma	6	-	6	—	—
Disease of the Heart, Functional and Organic	282	114	396	1·	·2
Hæmorrhoids	73	-	73	·2	—
Varix	5	-	5	—	—
Aneurism	13	-	13	—	—
Disease of the Stomach and Bowels	90	8	98	·2	—
Dysentery	110	46	156	·4	—
Diarrhœa	1,774	64	1,838	5·	1·
Constipation and Colic	138	-	138	·3	—
Disease of the Liver	342	9	351	·9	·1
Jaundice	223	97	320	·8	·1
Splenitis	68	-	68	·1	—

Table No. 2.—Showing the Number of Days' Sickness from each Disease, &c.—*cont^d*.

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	169	81	250	·6	·1
Syphilis, Primary	2,860	1,030	3,890	10·6	2·2
Syphilis, Secondary	929	447	1,376	3·7	·7
Gonorrhœa	1,186	70	1,256	3·4	·7
Orchitis	1,411	167	1,578	4·3	·8
Stricture	66	230	296	·8	·1
Incontinence of Urine, &c.	2	-	2	—	—
Rheumatism	4,768	1,203	5,971	16·3	3·3
Gout	20	-	20	—	—
Diseases of the Bones and Joints	1,242	253	1,495	4·	·8
Inflammation of the Eyes	736	101	837	2·2	·4
Amaurosis and Cataract	66	-	66	·1	—
Otitis and Deafness	367	56	423	1·1	·2
Erysipelas	292	488	780	2·1	·4
Scrofula	219	15	234	·6	·1
Bubo (*Symp.*)	971	99	1,070	2·9	·6
Phlegmon and Abscess	11,483	1,332	12,815	35·1	7·3
Ulcer	6,659	397	7,056	19·3	4·
Psora	86	24	110	·3	—
Eruptions, &c.	791	80	871	2·3	·4
Dyspepsia and Debility	1,801	284	2,085	5·7	1·1
Scurvy	4	-	4	—	—
Dropsy	105	11	116	·3	—
Worms	50	-	50	·1	—
Headache	127	-	127	·3	—
Purpura	49	-	49	·1	—
Wounds and Injuries	16,200	940	17,140	46·9	9·7
Burns and Scalds	572	-	572	1·5	·3
Hernia	108	-	108	·2	—
TOTAL	68,267	10,913	79,180	216·9	45·1

Table, No. 3.

Showing the Number Invalided in each Ship employed on the Mediterranean Station.

CAUSE of INVALIDING.	Arethusa.	Assurance.	Caledonia.	Caradoc.	Cruiser.	Endymion.	Enterprise.	Hibernia.	Hydra.	Ocean.	Prince Consort.	Psyche.	Racer.	Resistance.	Royal Oak.	Trinculo.	Victoria.	Wizard.	Total.
Continued and Remittent Fever	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1
Insanity	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1	–	–	–	2
Epilepsy	–	–	–	–	1	1	–	–	–	2	1	–	–	–	1	–	1	–	7
Vertigo	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
Inflammation of the Lungs and Pleura	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1
Phthisis and Hæmoptysis	2	–	2	–	1	2	–	–	2	5	3	–	1	–	4	–	6	1	29
Disease of the Heart, Functional and Organic	–	–	*a*2	1	1	1	1	–	–	1	1	–	–	–	–	–	–	–	8
Diarrhœa	1	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	2
Disease of the Liver	–	–	–	–	–	–	–	1	–	1	–	–	–	–	–	–	–	–	2
Inflammation of the Kidneys and Bladder	1	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	2
Syphilis, Primary	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1
Orchitis	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	2
Incontinence of Urine, &c.	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	1
[illegible]tism	4	–	1	–	–	6	–	1	–	–	–	–	–	–	2	–	1	–	19
[illegible] of the Bones and	–	–	–	–	1	–	–	–	–	1	3	–	–	–	–	–	–	–	4
Rheum[illegible]	–	–	–	–	–	–	–	–	–	–	1	–	1	1	–	–	–	–	4
Disease[illegible]	–	–	–	–	–	–	–	–	1	–	–	–	–	1	1	–	1	–	4
Joint[illegible]tion of the Eyes	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	–	1	–	1
[illegible]Deafness	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4
Inflamm[illegible]	–	–	–	–	–	–	–	–	–	1	–	–	–	–	*c* 1	–	–	–	1
Otitis and [illegible]	–	–	–	–	–	–	–	–	–	–	1	–	–	1	–	–	–	–	3
Scrofula	–	–	1	–	–	–	–	–	–	1	–	1	–	1	–	–	–	–	4
Bubo (*Symp.*)	–	–	–	–	–	*b*1	–	–	–	–	1	–	–	–	1	–	–	–	1
Abscess	–	–	–	–	–	–	–	–	1	–	1	–	1	–	–	–	–	–	3
Ulcer	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3
Eruptions, &c.	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Dyspepsia and Debility	2	1	2	–	–	–	–	–	2	5	5	1	–	–	1	–	3	–	22
Wounds	1	–	1	1	–	1	–	–	–	4	–	–	–	1	–	–	1	–	10
Hernia	–	–	–	–	1	3	–	–	–	–	–	–	–	–	3	1	–	–	8
Total	11	1	10	2	7	16	2	2	7	22	16	2	3	4	16	1	16	1	139

a 1 in Skylark, Gunboat. *b* Fistula in Ano. *c* Urinary Fistula.

TABLE, No. 4.

SHOWING the Number of DEATHS in each Ship employed on the MEDITERRANEAN STATION.

CAUSE of DEATH.	Arethusa.	Caledonia.	Caradoc.	Cockatrice.	Cruiser.	Endymion.	Hydra.	Ocean.	Prince Consort.	Psyche.	Racer.	Resistance.	Royal Oak.	Trinculo.	Victoria.	Wizard.	TOTAL.
Continued and Remittent Fever	4	2	–	1	1	2	–	1	–	1	–	–	2	–	–	–	14
Apoplexy	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1	–	2
Inflammation of the Lungs and Pleura	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	1
Phthisis	1	–	–	–	1	2	–	1	2	–	–	1	1	–	1	1	11
Disease of the Heart	–	–	1	–	–	1	–	1	–	–	–	–	–	–	–	1	4
Diarrhœa	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1
Disease of the Liver	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	1
Erysipelas	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1	–	2
Debility	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	1
Wounds and Injuries	1	–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	3
Drowned	–	–	–	–	–	–	–	–	1	–	1	–	–	–	–	–	2
Suicide	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1
TOTAL	6	2	1	1	3	7	1	3	4	2	1	1	5	1	3	2	43

TABLE, No. 5. - - - - - - - -

SHOWING the Names of the SHIPS; the Average Complements, &c.; the Number of Men Sick Daily, in each Ship;

C. Commissioned. P. O. Paid off.

Rate, &c.	NAMES of SHIPS.	Where Commissioned.	When Commissioned.	Number of Guns.	Tonnage.	Horse Power.
Iron-clad	Caledonia - S.C.	Devonport	27 April 1865	30	4,125	S. 1,000
	Enterprize	Woolwich	6 May 1864	4	993	S. 160
	Ocean - S.C.	Devonport	30 July 1866	24	4,047	S. 1,000
	Prince Consort	Devonport	14 Jan. 1864	31	4,045	S. 1,000
	Resistance - P.O.	Sheerness	2 July 1862	16	3,710	S. 600
	Royal Oak - P.O.	Chatham	27 April 1863	35	4,056	S. 800
First Rate	Victoria	Portsmouth	1 Nov. 1864	102	4,127	S. 1,000
Fourth Rate	Arethusa	Sheerness	8 June 1865	35	3,141	S. 500
	Endymion	Sheerness	27 Sept. 1866	21	2,486	S. 500
Sloop	Cruiser	Portsmouth	27 July 1866	3	752	S. 60
	Racer	Woolwich	22 June 1864	11	579	S. 150
Steam Vessel (Surveying)	Caradoc	Woolwich	21 Feb. 1867	2	676	P. 350
	Hydra - S.C.	Malta	10 Nov. 1863	6	818	P. 220
	Psyche	Malta	1 Jan. 1867	2	835	P. 250
Gun Vessel	Assurance - S.C.	Devonport	11 May 1864	4	681	S. 200
Gunboat	Cockatrice	Malta	9 Feb. 1866	2	269	S. 60
	Trinculo - C.	Portsmouth	Mar. 1867	2	273	S. 60
	Tyrian	Malta	13 July 1865	2	272	S. 60
	Wizard	Malta	27 Mar. 1866	2	270	S. 60
Receiving Ship	Hibernia	Malta	2 April 1867	-	2,530	-

- - - - - - - - TABLE, No. 5.

Cases; the Total Number of Days' Sickness on Board; the Average Number of and the Number Discharged to Hospital.

D. Returns defective. S. C. Station changed.

Period.	Average Complements.	Average Complements corrected for Time.	Number of Cases of Disease and Injury.	Number of Days' Sickness on Board.	Average Number of Men Sick Daily for Twelve Months.	Ratio per 1,000 of Average Force of each Ship.	Number discharged to Hospital.
28 May to 31 Dec.	675	400	634	6,223	17·	42·5	10
Year - -	130	130	287	1,919	5·2	40·	5
1 Jan. to 30 June	625	310	514	5,093	13·9	44·8	36
Year - -	600	600	742	9,657	26·4	44·	63
1 Jan. to 13 June	475	220	218	3,259	8·9	40·4	11
1 Jan. to 13 Dec.	620	600	884	9,544	26·1	43·5	31
1 Jan. to 7 Aug.	1,040	630	805	6,773	18·5	29·3	64
Year - -	540	540	792	9,970	27·3	50·5	15
Year - -	465	465	415	5,919	16·2	34·8	22
Year - -	180	180	172	2,136	5·8	32·2	13
Year - -	135	135	151	1,718	4·7	34·8	6
Year - -	65	65	60	540	1·4	21·5	2
1 Jan. to 30 Sep.	120	90	113	831	2·2	24·4	5
Year - -	65	65	156	1,170	3·2	49·2	8
1 Jan. to 31 Mar.	95	25	52	244	·6	24·	2
Year - -	50	50	120	1,037	2·8	56·	6
1 July to 31 Dec.	40	20	23	156	·4	20·	2
Year - -	40	40	76	515	1·4	35·	3
Year - -	45	45	108	1,105	3·	66·6	5
Year - -	190	190	102	1,130	3·	15·7	3

TABLE, No. 6.

SHOWING the Number of CASES of all DISEASES and INJURIES

DISEASE OR INJURY.	Arethusa.	Assurance.	Caledonia.	Caradoc.	Cockatrice.	Cruiser.	Endymion.	Enterprise.
Continued and Remittent Fever	18	1	10	3	19	8	10	19
Intermittent Fever	–	11	–	–	30	–	23	2
Small-pox	2	–	3	–	–	–	–	–
Measles	–	–	–	–	–	–	–	–
Disease of the Brain	–	–	–	–	–	–	–	–
Apoplexy	–	–	–	–	–	–	1	–
Insolation	–	–	–	–	–	–	–	–
Epilepsy	1	–	5	–	–	1	2	–
Paralysis	–	–	1	–	–	–	–	–
Insanity	–	–	–	–	–	1	–	–
Delirium Tremens	1	–	–	–	–	–	5	–
Neuralgia	–	–	1	–	–	–	5	1
Vertigo	–	–	–	–	–	–	–	3
Inflammation of the Lungs and Pleura	6	–	2	–	–	1	3	–
Phthisis and Hæmoptysis	4	–	1	–	–	1	2	1
Influenza and Catarrh	51	2	127	5	9	14	36	43
Cynanche	27	1	7	4	1	16	22	4
Asthma	–	–	–	–	–	–	–	–
Disease of the Heart, Functional and Organic	–	–	1	1	–	1	2	3
Aneurism	–	–	–	–	–	–	–	–
Hæmorrhoids	–	–	2	–	–	–	1	–
Inflammation of the Stomach and Bowels	–	–	*b* 2	–	–	–	–	–
Dysentery	–	–	–	–	2	–	4	1
Diarrhœa	82	5	75	4	16	9	4	10
Constipation and Colic	2	–	–	–	1	5	4	1
Inflammation of the Liver	5	–	–	1	–	–	7	–
Jaundice	2	–	2	–	1	–	–	–
Splenitis	–	–	–	–	–	–	1	–
Inflammation of the Bladder and Kidneys	1	–	1	–	–	–	1	–
Syphilis, Primary	17	1	9	8	3	2	10	1
Syphilis, Secondary	2	–	1	–	–	1	3	1
Gonorrhœa	9	1	5	–	5	–	1	4
Orchitis	7	–	7	3	2	1	7	1
Stricture of the Urethra	*a*1	–	1	–	–	–	3	1
Incontinence of Urine, &c.	–	–	–	–	–	1	–	–
Rheumatism	72	–	20	4	1	12	44	10
Gout	–	–	–	–	–	–	–	–
Diseases of the Bones and Joints	5	–	1	–	–	–	12	5
Inflammation of the Eyes	8	1	5	–	1	1	8	1
Amaurosis and Cataract	–	–	–	–	–	–	–	–
Otitis and Deafness	2	–	5	–	–	–	–	5
Erysipelas	c1	–	1	–	–	–	3	–
Scrofula	–	–	2	–	–	–	–	1
Bubo (*Symp.*)	3	–	–	1	–	–	3	1
Phlegmon and Abscess	190	10	161	13	7	33	*d* 70	84
Ulcer	34	3	24	4	–	12	8	12
Psora	–	–	–	–	–	–	–	–
Eruptions, &c.	4	–	7	–	–	2	4	6
Dyspepsia and Debility	27	5	15	–	8	8	3	6
Scurvy	–	–	–	–	–	–	–	–
Headache, &c.	–	–	–	–	–	–	–	–
Dropsy	–	–	–	–	–	–	–	–
Worms	1	–	*e* 2	–	–	–	–	*e* 5
Purpura	1	–	–	–	–	–	–	–
Wounds and Injuries	203	11	123	8	14	41	92	53
Burns and Scalds	3	–	4	1	–	–	4	2
Hernia	–	–	1	–	–	1	7	–
TOTAL	792	52	634	60	120	172	415	287

a Enlarged prostate. *b* Prolapsus ani. *c* Erythema. *d* 1 Fistula in Ano. *e* Tænia. *f* 1 Convulsions.

TABLE, No. 6.

in each Ship employed on the MEDITERRANEAN STATION.

Hibernia.	Hydra.	Ocean.	Prince Consort.	Psyche.	Racer.	Resistance.	Royal Oak.	Trinculo.	Tyrian.	Victoria.	Wizard.	TOTAL.
1	7	43	37	12	6	11	37	–	6	38	4	290
1	–	–	–	–	–	1	–	–	3	4	8	83
–	–	–	–	–	–	2	–	–	–	–	–	7
–	–	1	–	–	–	–	4	–	–	–	–	5
–	–	–	–	*i* 1	–	–	–	–	–	1	–	2
–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	1	–	–	–	–	–	–	–	–	–	1
–	–	3	4	3	–	–	2	–	–	2	1	24
–	–	2	–	–	1	–	1	–	–	–	–	5
–	1	–	–	–	–	1	1	–	–	–	–	4
1	–	2	1	6	–	1	2	–	–	1	2	22
–	–	1	3	–	–	–	2	–	2	2	–	17
1	–	–	–	–	–	–	1	–	–	–	–	5
2	1	–	22	–	4	3	2	–	1	3	–	50
2	1	2	7	1	1	1	8	–	–	3	3	38
4	14	60	50	14	16	29	48	1	6	163	12	704
5	1	9	26	2	6	7	26	–	1	31	1	197
–	–	–	–	–	–	–	2	–	–	–	–	2
–	–	*g* 4	–	3	–	–	3	–	–	3	1	22
–	–	1	–	1	–	–	–	–	–	–	–	1
1	–	2	–	–	–	1	–	–	–	2	–	9
–	–	–	1	–	–	–	–	–	–	–	–	3
2	1	–	–	–	1	–	–	–	–	–	–	11
8	13	25	20	14	20	6	27	4	4	21	15	382
3	1	–	1	–	2	–	7	–	2	1	–	30
–	–	1	–	–	–	1	1	–	–	–	–	16
2	–	2	–	1	–	2	3	–	1	1	1	18
–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	1	1	–	–	1	–	1	2	–	9
7	1	6	17	4	6	5	15	–	–	32	–	144
2	–	13	5	1	–	3	5	–	–	1	1	39
2	2	5	12	4	–	1	10	1	4	8	1	75
3	1	5	10	3	1	1	12	–	3	17	–	84
–	–	–	3	–	–	–	1	–	–	2	–	12
–	–	–	–	–	–	–	–	–	–	–	–	1
14	5	21	44	2	5	15	36	–	4	29	–	338
1	–	–	1	–	–	–	–	–	–	–	–	2
–	–	–	7	–	–	2	12	*m* 2	–	–	–	46
1	2	5	8	–	1	–	11	–	1	10	–	64
–	–	–	–	–	–	–	1	–	–	–	–	1
–	–	–	7	1	–	1	2	–	–	4	–	27
c 1	–	–	*h* 8	–	–	–	*c* 5	–	–	–	–	19
–	–	1	–	1	–	–	1	–	–	–	–	6
–	–	1	5	1	1	3	*l* 7	–	–	2	–	28
14	31	98	166	29	32	58	154	6	17	204	15	1,392
6	2	39	91	1	8	3	50	–	2	35	13	347
–	–	8	–	–	–	–	–	–	–	1	–	9
1	–	2	13	1	1	2	13	1	1	1	–	59
3	9	48	16	10	–	5	24	3	6	32	4	232
–	–	–	–	–	1	–	1	–	–	–	–	1
–	–	5	3	10	–	1	1	–	–	1	1	22
–	–	–	4	2	–	*k* 1	–	–	–	–	–	7
–	–	–	–	*e* 1	–	–	*e* 45	–	–	–	*e* 2	56
–	–	–	2	–	–	–	–	–	–	–	–	3
14	20	99	140	25	35	50	285	4	11	137	23	1,387
–	–	1	4	1	3	1	12	–	–	11	–	47
–	–	–	3	–	–	–	4	1	–	–	–	17
102	113	514	742	156	151	218	884	23	76	805	108	6,424

g 1 Epistaxis. *h* 3 Erythema. *i* Spinal meningitis. *k* Œdema. *l* 2 Fistula in Ano. *m* 1 Ozæna.

NORTH AMERICAN AND WEST INDIAN STATION.

North American and West Indian Station.

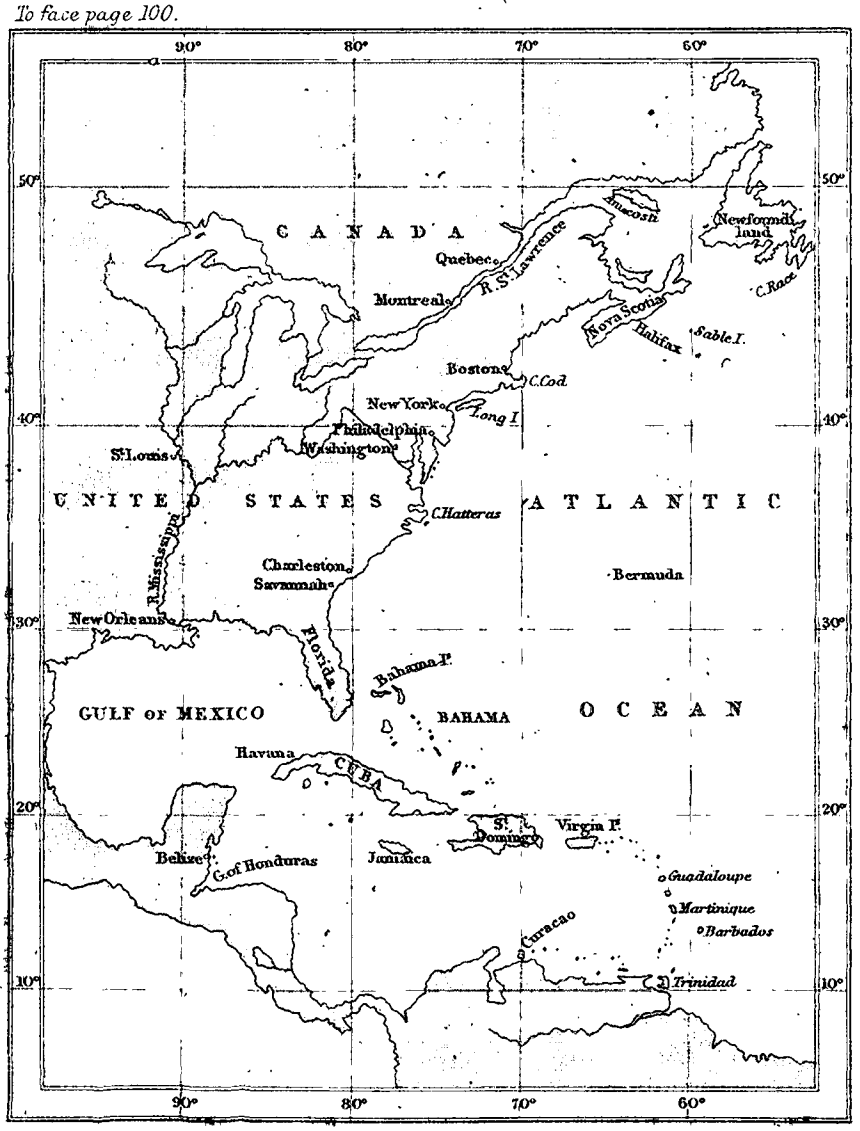
THE squadron on the North American and West Indies Station in 1867 comprised twenty-five vessels; viz., two iron-clads; one vessel of the second rate; four, of the fourth rate; four, of the sixth rate; seven sloops; three gun-vessels; two gunboats; one receiving ship permanently stationed at Port Royal, Jamaica; and one floating battery permanently stationed at Bermuda. The mean force corrected for time was 5,330, but in estimating the ratio of cases entered on the sick-list, the force will be taken as 5,080, a reduction to the extent of 250 men being rendered necessary under this head, in consequence of the returns of six small vessels being defective. The total force, however, is taken in estimating the invaliding and death rates. The returns from seventeen of the vessels are for the whole twelve months, and from the remainder for periods varying from three to eleven months. The total number of cases entered on the sick list was 7,431, which is in the ratio of 1462·7 per 1,000 of mean force, being a very trifling increase compared with the preceding year. Of these, 163 were invalided, and sixty-four died, the former being in the ratio of 30·5, and the latter of 12· per 1,000, both ratios being slightly above those of the previous year.

The average daily loss of service from fevers was equal to thirty-four men, or in the ratio of 6·2 per 1,000 of mean force. The sick-rate from diseases of the brain and nervous system was ·2 per 1,000; of the respiratory organs, 5·5; of the heart and bloodvessels, ·9; of the alimentary canal, 1·3; of the liver, ·1; of the genito-urinary organs, 6·2; from rheumatism, 3·2; diseases of the bones and joints, ·2; of the special senses, ·3; of the skin and cellular tissue, 13·; from diseases not classed, 1·4; and from wounds and injuries of various kinds, and hernia, 7·4. The average number of men sick daily was 265·8, which is in the ratio of 49·8 per 1,000 of mean force, being very nearly the same ratio as in the preceding year.

Fevers.

NORTH AMERICAN AND WEST INDIAN STATION.

To face page 100.



North American and West Indian Station.

Fevers.—There were 795 cases of continued and remittent fever; fifty-four of yellow fever; seventy-two of ague; and two of scarlatina, under treatment during the year; and of these, five of primary fever and one of ague were invalided; and two of primary fever, and eighteen of yellow fever proved fatal. The average duration of each case of primary fever on board ship and in hospital was between twelve and thirteen days; of each case of yellow fever, between thirty-nine and forty days; of each case of ague, between nine and ten days; and of each case of scarlatina, between seventeen and eighteen days. The average duration of each fatal case of yellow fever was between five and six days.

Continued and Remittent Fever—One hundred and eighty-eight cases of primary fever appear in the returns of the Aboukir, of which three are classed as continued, 143 as remittent, and forty-two as febricula. Of these, seventy cases of remittent fever, and seventeen of febricula, occurred in the Lady quarter; thirty-five of remittent, and sixteen of febricula in the Midsummer quarter; six of remittent in the Michaelmas quarter; and thirty-two of remittent, nine of febricula, and three of continued fever, in the Christmas quarter of the year. In the Midsummer quarter four cases of yellow fever appear in the returns of this vessel, but as seven deaths from that disease occurred among her officers and men in the Naval Hospital at Jamaica, there can be no doubt that many of the cases of so-called remittent fever were mere modifications of the more malignant disease. The surgeon,* in fact, says:—

"Although only four cases appear in the nosological returns as yellow fever, upwards of thirty, entered under the head of remittent (which has been the prevailing type), proved to be cases of yellow fever in hospital, which is accounted for by these cases having been removed, in the majority of instances, to hospital on mere suspicion, in order to avoid, if possible, the outbreak or spread of the disease on board; but, in many cases, when I have ascertained the nature of the disease, in giving the patient's case I have noted it as yellow fever.

"Fever of a remittent character became prevalent in this ship in the beginning of December 1866. The weather at the time was very hot, and but little rain had fallen; the range of the thermometer for the quarter being from 70° minimum to 89° maximum between decks, and the prevailing winds east and south-easterly. The

* Surgeon John Coogan.

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"The mean numerical strength of the ship's company for that period was 207.

"The disease was ushered in, in the majority of cases, by rigors; lassitude; pain in the epigastrium, increased on pressure; pain in the loins and limbs; severe frontal headache; an injected state of the conjunctivæ; great heat and dryness of skin, ranging from 100° and 107° Fahrenheit; the respiration was but little affected; the pulse ranging from 76 to 100, generally soft and compressible; the tongue generally moist, and coated with a white and sometimes with a yellowish fur; nausea and vomiting were not frequent; and thirst, with fetid breath, was present in a few cases. In some the attack commenced with colicky pains, diarrhœa, and nausea, or vomiting of bilious matter. The exacerbations came on generally in the afternoon, and the remissions, in many instances, were ill defined. Delirium was seldom present. The patient continued in this state sometimes up to the third or fourth day, but more generally there was a remission on the second day. The treatment consisted in the administration of a mercurial purge at the commencement, and after the bowels had been freely purged, a saline diaphoretic mixture was given every three hours, and counter-irritation, in the form of sinapisms or turpentine fomentations, applied to the epigastric region and abdomen. The hair was cut short, and cold lotions applied assiduously to the forehead and temples, and low diet prescribed. The skin, in the majority of the cases, from being hot and dry, became moist and perspiring in from twenty-four to forty-eight hours, and there was a fall in the temperature of the body, as well as in the pulse. Quinine was now given in solution, either with sulphuric acid and water, or in combination with a saline purgative mixture, in doses of from three to five grains three times a day, but was discontinued during the paroxysms. When convalescence was established, a generous diet was allowed, with six ounces of port wine daily. Convalescence was generally protracted, Quinine was extensively given as a prophylactic to the working parties employed in the dockyard."

There were three cases of primary fever in the Aurora. Two are classed as continued, and one as remittent. One of the cases of the continued type presented some of the features of enteric fever; but, with this exception, there was nothing to call for comment in connection with them.

In the Barracouta there were sixteen cases of primary fever, six of which are classed as remittent, and ten as febricula. They appear to have been, for the most part, of a mild character.

There was a single case of primary fever in the Britomart; it was of the continued type, and presented no features of any interest.

There were twenty-two cases of primary fever in the Cadmus, twenty-one of which were of an ephemeral character, the remaining

remaining case being classed as remittent. In the majority the disease was contracted at Port Royal, Jamaica, and was attributed chiefly to solar heat.

In the Constance there were twenty-seven cases of primary fever, thirteen of which are classed as remittent, and fourteen as febricula. Much of this disease was contracted at Port Royal, Jamaica. Several of the cases of remittent fever were of great severity, and occurring as they did at a time when yellow fever was prevailing extensively on shore, and when cases of that fatal form of fever had occurred on board, they naturally caused much anxiety. In some the symptoms presented so close a resemblance to those of the more malignant form of fever, that a reasonable doubt may be entertained whether they were not, in point of fact, the same disease. Of two, for example, (which were entered on the sick-list on the day on which a man was sent to hospital with undoubted yellow fever which proved fatal on the same evening,) one is said to have been of great severity, the collapse being extreme, and spasms and cramps of the trunk and extremities of great violence. Both were characterised by copious black stools, yellowness of the skin, severe pain in the eyeballs, forehead, and loins, and both had marked remissions in the first twenty-four hours, and made rapid recoveries. In connection with these, one of the men who nursed them, was attacked next morning; it was a mild case, but the stools were very dark and copious; the matter vomited was streaked with blood, and the gums readily bled on the slightest pressure.

There were seven cases of primary fever in the Cordelia, all of which are classed as febricula: the average duration of each case was three days.

In the Cygnet there were nineteen cases of primary fever, the majority of which were of an ephemeral character. Five cases, however, classed as remittent, which occurred in the early part of the Lady quarter of the year, when the vessel was at Nassau, appear to have been of a protracted nature, the average duration of each case being nearly three weeks. No information, however, is given in connection with them.

There were 105 cases of primary fever in the Doris, of which seventy-three are classed as remittent, and thirty-two as febricula. Many of these cases were of great severity. The majority of them occurred in the form of an epidemic in

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the Lady quarter of the year under the following circumstances, as narrated by one of the medical officers* of the ship :—

"On the 14th of March 1867, Her Majesty's Ship Doris went up to Kingston from Port Royal, for the purpose of giving leave to the ship's company after being paid down. From the beginning of the year up to this time, the general health of the crew had been remarkably good. In January a visit was made to Belize, in British Honduras, where the ship remained ten days, and shortly after returning to Port Royal, intelligence having been received of the wreck of the French transport Gironde, on Bare Bush Cay, about eighteen miles from Port Royal, the Doris was immediately despatched there to render assistance. This necessitated a great deal of exposure of officers and men, both to sun and water, and much hard work for many hours together; but during this time quinine was regularly administered, as directed in the station orders, to all who were away from their own vessel. Towards the end of February, the Doris went to Carthagena and Santa Martha, on the Spanish Main, remaining five days inside the harbour at the former place and a few hours at the latter. During the whole of this period, after visiting two notoriously unhealthy places, and after severe labour and exposure for a fortnight, no appreciable increase of sickness resulted; but, as I have mentioned above, on the 14th of March one watch went on shore on seventy-two hours' leave, returning on the 17th of March; the second watch going on the 18th March and returning on the 21st, thus giving each watch three clear days' leave on shore. Of course, all those allowed to go were in good health, and were cautioned beforehand of the risks they ran; but as it was known that cases of fever (some of which were yellow) existed in the Civil Hospital at Kingston, and the cases of the same sort were appearing from time to time in the vessels at Port Royal, great care was taken to prevent the men when on shore from lying about in the sun by day, or exposing themselves to unwholesome land breezes at night, by keeping a marine picket constantly patrolling the streets.

"I may here mention that the inside of the whole of the ship was kept perfectly sweet and clean, by the liberal use of lime, chloride of zinc, and Smith's disinfecting powder, and that in consequence of her large and numerous hatchways, no ship could be better ventilated.

"The ship returned to Port Royal on the 22nd of March, but in a very short space of time, the three first cases of fever (which ultimately proved to be all yellow and fatal) made their appearance. The first occurred in a Marine who had been on leave from the 14th to the 17th of March, and was entered on the list on the morning of the 21st. The next was that of an ordinary seaman who had been on leave from the 18th to the 21st, and who presented himself on the morning of the 23rd; whilst the third case was that of another Marine, who had also been on leave from the 18th to the 21st of March,

* Assistant Surgeon C. J. Fennell.

March, and who was placed on the list on the evening of the 23rd. All those three showed the same symptoms; all had evidently had a heavy debauch, and were bruised with fighting. They complained of headache, particularly referred to both temples; sickness; pains in the back and legs; foul tongue, red at the tip and edges, and indented by the teeth; hot skin, and suffusion of eyes; in fact, an exaggerated state of pyrexia. All were treated in a like manner with an emetic (one scruple of ipecacuan), and after its action the bowels were well cleared out by means of calomel and saline aperients. In these cases no bad symptoms were shown which could cause any anxiety, or lead one to suspect that they were anything more serious than cases of common remittent fever, until the afternoon of the 24th, when constant vomiting set in in all of them, which could not be allayed by any means employed; but at the last visit that night, at 11 p.m., all seemed a little better and inclined to sleep. At 6 a.m. the following morning, the sick-bay man reported that one of the Marines was delirous (this was the last of the three placed on the list), and on going forward to see him, I found that he was not only in that condition, but that he also had decided yellowness of skin and conjunctivæ, whilst the other two were observed to be in a high state of fever, with some tendency to coma. They were all immediately sent to hospital, where the other Marine became delirious in the waiting-room before his reception. All rapidly became much worse, and exhibited all the symptoms of malignant yellow fever. The Marine last entered on the list died at 4 p.m. on the day of his admission into hospital; the ordinary seaman at 10 a.m., and the other Marine at 6 p.m. of the following day.

"The ship was now sprung broadside to the wind, so as to give even better ventilation than before, but cases continued to come in almost hourly. On the 26th of March there were sixteen more cases of fever, but as all these were immediately sent to hospital on being observed, the symptoms were much milder than those detailed before, and early on the morning of the 27th, six more cases were transferred to the shore. It was afterwards thought that one of the cases sent on the 26th might be one of sunstroke, but, at any rate, before twenty-four hours were over, six or seven of them showed undoubted signs of yellow fever. On both these days careful inspections were made of the men, and several were picked out who showed premonitory signs of fever coming on. At these inspections everyone noticed the marked deterioration in the general physique of the men, after an almost continuous stay of ten months at Port Royal. Many were very thin, and nearly all extremely sallow.

"On the morning of the 27th of March, it having become pretty evident that fever of a bad type had seized on, and was spreading rapidly through the ship's company, on representation being made by the Deputy Inspector General* at Port Royal, and the surgeon† of this ship, it was deemed advisable to send the Doris to the northward. Accordingly, the Commodore despatched her to Halifax

* Deputy Inspector General William Duirs, M.D.

† Surgeon Henry Arnot, M.D.

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lifax at 11 a.m. of the same day. Cases of fever continued to come in during that afternoon and evening to the number of eight. Five more occurred on the 28th; two on the 29th; two on the 1st of April; three on the 3rd; and three on the 4th. All these showed much the same symptoms, and exactly resembled the remittent fever which I saw when serving in H.M.S. Torch on the West Coast of Africa. Headache from temple to temple; increased heat of scalp; giddiness; suffusion of eyes; pain in epigastrium; tongue very tremulous, dry, brown, and coated, but red at edges and tip, and indented by the teeth; a pungent heat of skin; and a pulse varying from 86 to 108 per minute.

"Precisely the same treatment was employed with all of them. To those who had been vomiting, an ipecacuan emetic was administered, followed by copious draughts of warm water. After vomiting had ceased, a five-grain calomel pill and a draught composed of sulphate and carbonate of magnesia was given at the same time. In the evening an awning was rigged up under the spanker-boom, affording ample, airy, and cool accommodation for the fever cases, who were all placed under it, and kept isolated from the rest of the ship's company. Cold tea, or weak beef-tea, was given as a drink during the night. Next morning a mixture composed of spirits of nitric æther, nitrate of potass, and tartar emetic in water, was given every four hours. The frequency of administration of this medicine was afterwards reduced to three times, then to twice a day. In these cases there was temporary suppression of urine for about eighteen hours, but this was relieved by the above medicine, and in four cases the bowels were so costive as to require a moderate dose of podophyllin. All progressed very favourably with one exception, that of an officer. The convalescence of one or two was a little protracted, perhaps on account of the greater liberty afforded them, after the screen on the poop was taken down on the fifth day, and the sick scattered about the decks. On about the fourth day after each man's seizure, when no more remissions were to be expected, eight ounces of preserved beef, mutton, or fowl, and two ounces of preserved potatoes, were allowed to each man per diem; quinine was substituted for the saline mixture, and porter was subsequently added to their dinners. With the exception of the officer alluded to, all were discharged to duty on the 13th of April.

"In eight of these cases a delicate thermometer was placed in the axilla, and the frequency of the pulse, and height of the temperature taken at the same time, but the indications given were much at variance, and bore no relation to each other whatever. The thermometer at Port Royal, at the time the attack came on, ranged from 77° to 84°; the usual land and sea breezes alternated by night and day, and the weather, generally speaking, was fine, and certainly not so hot as we have experienced it before. The barometer averaged from 30·05 to 30·20. Of course, as the ship proceeded to the northward, the thermometer fell rapidly. Only one day of bad weather was experienced, and the ship arrived at Halifax on the 9th of April, when she was at once placed in quarantine.

"The cause of all this mischief is without doubt distinctly traceable to the ship's company having gone on leave at Kingston. This

is plainly shown by our previous good health, and the immediate succession of the fever after the men's return from leave, allowing a certain time for the incubation of the poison. That it was of an exceedingly malignant character is, I think, also pretty clearly indicated by the rapidity with which death followed the seizure of the first three cases. (At present we are unable to conjecture how many of those sent to hospital may have proved fatal, but we do know that several were declared cases of yellow fever before we left the port.) Lastly, I think the result has unmistakably proved the wisdom and discretion of immediately sending a vessel with malignant cases of yellow fever on board, not only away from the place where this disease was contracted, but to a climate so cold that it is scarcely possible for yellow fever to develop itself, and I cannot but believe that had the Doris been detained at Port Royal any longer, not only would more cases of fever have presented themselves, but that a considerable number would have certainly turned out to be of a malignant and fatal type."

The cases of primary fever occurring in the Duncan, Favorite, Fawn, and Gannet do not call for any remarks: they were for the most part of an ephemeral character.

There were 124 cases of primary fever in the Jason, one-half of which are classed as remittent, and the remainder as ephemeral. The average duration of each case of remittent fever on board ship was between nine and ten days, and of each case of ephemeral fever between two and three days. With reference to the cases of remittent fever, thirty of which occurred in the Midsummer quarter of the year, and twenty-five in the Michaelmas quarter, the surgeon* makes the following observations:—

"The cases noted of this disease have been distributed over the whole period of the return, and include country fever at Jamaica and Vera Cruz, as well as the two epidemics which formed the bulk of the numbers. The five cases remaining on the 1st of January were contracted at Belize, and the circumstances, &c., are reported in my last year's Journal. They all convalesced rapidly. The first epidemic occurred in the end of May and early part of June at Vera Cruz, and was of a nature to cause much anxiety. Yellow fever was raging in the city, and the unsettled state of affairs with the place closely besieged, and the foreign residents threatened with danger from within, rendered it necessary that the ship should remain there. The French corvette Phlegeton was affected at the same time with the same class of cases, which were doubtful in their symptoms; an acute and prolonged first attack, with severe orbital and lumbar pain, and in many cases epigastric uneasiness, and irregular subsequent remission, made it appear probable that we were in the early stage of a yellow fever epidemic; and,

* Surgeon W. H. Lloyd, M. D.

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and, to add to the uncertainty, one of the cases in the Phlegeton took on symptoms of undoubted yellow fever, and died. Here the value of the albumen test became apparent. When in the early stages, as far as my experience goes, no one could have spoken with certainty to the type of the fever; the urine was closely watched, and no trace of albumen appeared in any case. Meanwhile the sick were isolated, and every preparation made for immediate departure should the graver disorder appear, as in the enfeebled state of the crew, under the circumstances I have mentioned, an epidemic must have made fearful havoc amongst them. However, towards the middle of June a succession of cool north winds brought on a salutary change, so that by the 30th, five convalescents were the only relics left. Including the milder cases, which are classed under the head of ephemeral, fifty-three cases were treated. Debility and slow convalescence were the most marked peculiarities, all the patients requiring support. I may mention that, a few weeks after this, the ship that had been longest in company with us under the same circumstances, the American man-of-war Tarony, had such a bad epidemic of yellow fever, that it became necessary to put her out of commission.

"The second outbreak of the fever occurred with the epidemic of yellow fever in September at Port Antonio, Jamaica; in this instance, the cases with no albuminuria yielded to quinine very satisfactorily."

There was nothing of a noteworthy character in the cases of primary fever occurring in the Niger. Twenty-eight were entered on the sick-list, of which four are classed as remittent, and the remainder as febricula.

There were 118 cases of primary fever in the Nimble, nearly one-half of which occurred during the Lady quarter of the year, when the vessel was at Nassau. With reference to this epidemic, the medical officer* says:—

"The health of the ship has unfortunately been below the average owing to an attack of fever which broke out at Nassau in the beginning of the quarter. The prodromata were obscure, as no man presented himself to me till the symptoms were well marked, viz., severe headache, extreme pain across the eyes and over the frontal sinuses, dulness, and occasional loss of feeling in the region of the cerebellum. Rigors, vomiting, and pain in the back, were always present, with a creamy white tongue and red edges. The tongue in many cases had prominent red papillæ. The urine was dark and scanty, and in ten cases (which were also characterised by yellowness of the skin and conjunctivæ) albumen was present.

"The appetite was vulpine, or entirely absent. Between noon and 5 p.m., the pulse often fell with such alarming rapidity that the free use of stimulants was necessary. In all these cases the mind wandered

* Assistant Surgeon F. F. Flynn, A.B., M.B.

wandered, but as the stimulant took effect, the mind cleared, the pulse improved, and a short but tranquil sleep resulted. Knowing that sailors are liable to panic when disease is supposed to be severe, and that they have an insuperable objection to be placed on the same footing as black soldiers (the case in hospital at Nassau), I kept them on board in a temporary hospital abaft the mizen, and as the men thought the disease infectious and contagious, I always slept between the two worst cases. Fortunately no fatal case occurred, and the men sent to hospital at Port Royal were more sent because the ship was refitting.

"The probable causes of the fever were, I think, as follows:—1st. The ship having been blown on shore in a hurricane in Nassau harbour, where she remained in six feet of water for fifty-three days. The men had to undergo great hardships, working a great part of the time in the water, laying out anchors, working at the capstan night and day, and being constantly disturbed in their sleep. 2ndly. The stimulus of the hope and excitement of getting the ship off being removed, the scarcely less difficult task of returning stores, &c. commenced. 3rdly. The ship being placed in the dry dock, where sleep was banished by mosquitoes and sand-flies, independently of the insalubrity of the place. 4thly. The ship's company has been over three years on the West Indian Station, and never having had a chance of recruiting their health by a visit to the North American Station, are consequently debilitated. 5thly. Climatic and other peculiar influences, as the Cygnet had fever of the same type at Nassau at the same time, and yellow fever was prevalent in the West Indies. 6thly. Ozone was almost absent at Nassau in January 1867."

With the exception of the cases occurring during the epidemic, the majority of those attacked with remittent fever in the Nimble had the disease in a very mild form.

The cases of primary fever occurring in the Phœbe, Rescue, and Royal Alfred, do not call for any notice.

There were seventy-one cases of primary fever in the Sphinx, three of which are classed as remittent, and the remainder as febricula. Of the cases of remittent fever, two occurred in the persons of officers, and were of considerable severity; the third, which occurred in the person of a man very subject to febrile attacks, was followed by some amount of cerebral excitement, for which he was discharged to hospital. Of the cases of febricula, sixty-six occurred during the Midsummer quarter of the year, when the vessel was employed between Barbados, Tobago, Trinidad, St. Thomas's, and Antigua. The surgeon* remarks:—

"At the outset of these attacks there was severe headache with pain

* Surgeon J. Lee Sands, M.D.

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pain in the back, and the skin was hot and dry. The tongue was furred; the pulse small, quick, and wiry; the eyes tender and suffused; the urine scanty and high coloured. In some there was irritability of the stomach, and diarrhœa, but generally the bowels were obstinately costive; in the most severe cases there was bilious vomiting and delirium. These symptoms usually lasted from four to six days, when the fever terminated in sweating, and an increased secretion of urine, leaving the patient weak, convalescence being rapid. In a few instances relapses occurred. Large doses of quinine often repeated were found to check the fever in some few cases, but often it was unavailing. The treatment consisted of purgatives in the early stage, if the bowels were constipated, followed by diaphoretics, cold lotions to the head, slop diet, and during convalescence quinine and iron, with a fair amount of stimulants. All the patients were brought on deck and placed under a double awning. The epidemic not appearing to diminish, the senior officer thought it advisable on the 27th of May to send the ship from Barbadoes to Antigua. The whole of the officers and ship's company were landed in the barracks at that yard, and the ship cleared out and thoroughly cleansed, not that there was any odour from the bilges, they being always perfectly dry and clean. The beneficial effects of our trip to Antigua were well marked, the sick-list on our return to Barbados on the 19th June being reduced to twelve, whereas on leaving it was thirty-two.

The cases of primary fever in the Steady were of an ephemeral character, the average duration of each case being between four and five days.

There were twenty-two cases of primary fever in the Terror, one of which proved fatal. This occurred in the person of an officer's servant who resided on shore, and who complained on the 14th of June of slight febrile symptoms with diarrhœa, from which he had been suffering, he stated, for two previous days. The treatment to which he was subjected appeared to act favourably upon the diarrhœa, but general prostration continued with suspicious tenderness in the right iliac region, lumbar pain, and deafness. In this condition he was sent into the Naval Hospital at Bermuda on the 18th of June, where the diarrhœa, abdominal tenderness, and extreme prostration continued, and terminated fatally on the 20th. The following is the report of the post-mortem examination furnished by the Deputy Inspector General* of the Hospital:—

"Body attenuated; rigor mortis present; ecchymoses posteriorly, also of the anterior and upper part of the neck and sternum. Abdomen

* Deputy Inspector General H. J. Domville, M.D.

Abdomen tympanitic. On incision, a quantity of fetid gas escaped; omentum congested, brownish red in colour; the cavity of the abdomen contained about one quart of yellowish fluid, mixed with feculent matter, smelling most offensively. The large intestine was distended with flatus; the mesenteric glands were very much enlarged and vascular at the junction of the ileum with the cæcum. Removed about three feet of the ileum with the large intestine. On examination, the former was found to be, for about eighteen inches from the cæcum, vascular, thickened, and friable, containing three perforations close to the cæcum, about one inch apart, following the course of the intestine, the larger and centre one having a diameter of about half-an-inch, the two others about one-fourth. These ulcers were circular with defined edges; there were also about eight smaller ones impacted with fæces at various distances from each other. The cæcum and colon presented no abnormal appearance."

No information is given in connection with the other cases of primary fever occurring in this vessel.

Yellow Fever.—Fifty-four cases of this fatal form of fever appear in the returns from the squadron, of which nineteen, or rather more than one in every three cases, died. It is probable, however, indeed almost certain, that a considerable number of cases of yellow fever have been returned as remittent, on account of their not presenting features of such gravity as to justify the medical officers in their opinion in classing them under the head of the more malignant disease.

In the "Statistical Report of the Health of the Navy for the Year 1866,"* the history of the outbreak of yellow fever at Jamaica, as furnished by the Deputy Inspector General of the Naval Hospital, is given at length. It is there shown that the first case occurred at Morant Bay, in the month of November, and that as far back as the month of July, a merchant vessel from St. Thomas, then lying at Morant Bay, was reported to have cases of the disease on board. During the whole of 1867 the fever continued to prevail at Port Royal, both on shore and among the shipping; and at the Royal Naval Hospital at Port Royal it proved very fatal to the medical staff, the Deputy Inspector General,† the surgeon and medical storekeeper,‡ and an assistant surgeon§ succumbing to the disease. In the Lady quarter of the

* Page 111.

† Deputy Inspector General William Duirs, M.D.

‡ Surgeon D. G. Pendrith.

§ Assistant Surgeon F. H. Richardson, M.D.

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the year twenty-eight cases were admitted to the Naval Hospital at Port Royal; in the Midsummer quarter, twenty-one; in the Michaelmas quarter, six; and in the Christmas quarter, eight. The Deputy Inspector General, alluding to the Return for the first quarter of the year, says:—

"It will be seen from this Return, that yellow fever still maintains a footing at Jamaica. Both Port Royal and Kingston are infected, the latter more particularly. In the town of Port Royal the cases have been very few, only four in all, as far as I can learn; and all these, except one (the first one a lad employed in the dockyard) were brought into hospital for treatment, by order of the Commodore, partly with a view to prevent the disease from spreading, the patients being all more or less connected with the naval service; viz., first, a clerk in the dockyard; second, the wife of the boatswain of the yard; and third, a young gentleman, a clerk of Her Majesty's ship Doris, who had obtained his discharge from the service, and was waiting at Port Royal to take a passage home in the first man-of-war.

"Of the ships, the Steady, Aboukir, Nettle, and Doris, in the order here named, are those which have sent yellow fever cases into hospital.

"In the Steady, the first person attacked was the commander, admitted on the 17th of January; two of the crew followed on the 25th of the same month, viz., the sailmaker and a private Marine. These were all the cases of specific fever in this vessel; but her crew suffered very much about that time, and subsequently from endemic fevers, so much so that she was almost disabled, and it was necessary to send her to the northern division of the station, for change of climate.

"The first case of yellow fever from the Aboukir this year was on the 9th of January; the second, on the 1st of February, both in men belonging to the Commodore's galley. The only case in the Aboukir previous to this, was in a man belonging to the commander's gig, who was admitted in December last.

"The crew of the Nettle had been in a very unsatisfactory state of health, and had suffered largely from endemic fever ever since her arrival at this place, in November last. The lieutenant commanding was admitted with yellow fever on the 27th of November. The next case was a corporal of Marines, on the 21st of December; there is then a period of freedom from yellow fever till the 22nd of February, when two cases appear. In the interval, the crew being sickly, and the gunboat herself in an unsatisfactory condition, leaking, and smelling offensively, they were removed out of her altogether, and put on board the Aboukir.

"As to the origin of the yellow fever in the Doris, there cannot be any doubt; her ship's company had general leave at Kingston between the 13th and 21st of March. The ship came to Port Royal on the 22nd, and on the 25th three men were sent to the hospital with yellow fever; one died on the same day, two days ill; the other two died on the 26th, four and five days ill respectively. On the

the 26th five men were sent in with yellow fever, and eleven others; and on the morning of the 27th, after landing one more case of yellow fever, and six others that were at the time doubtful, the ship steamed out of harbour for Halifax.

"It cannot escape observation, that in all the vessels in which yellow fever has presented itself, the first attacked have been those who have had many opportunities of communicating with the shore at infected ports. The lieutenant commanding the Nettle was the first of all; the commander was the first in the Steady; the galley's crew in the Aboukir, and liberty men in the Doris; a very instructive lesson in such a disease."

The vessels in which cases of yellow fever are recorded, were the Aboukir, Barracouta, Cadmus, Constance, Doris, Jason, Niger, and Wolverene.

Four cases of yellow fever appear in the returns from the Aboukir, but on referring to Table IV, it will be seen that seven deaths from this disease occurred in connection with this ship. On this point the remarks of the surgeon have been already quoted.* He goes on to add:—

"On the 22nd of December 1866, the Nettle was cleared out, and her crew berthed in the sail-loft in the dockyard, where they remained until the 21st of January succeeding, but having again become sickly, they were turned over to this ship on the 27th of February 1867, and continued to live on board. During the first quarter, ending the 31st of March 1867, there were seventy cases of remittent fever added to the list, of which twelve subsequently proved to be cases of yellow fever in hospital, five of these occurring in men belonging to the Nettle, whose crew, as already stated, had been turned over to this ship, and were then living on board.

"In the quarter ending the 30th of June, although there were only four cases entered in the Nosological Return, eight others sent to hospital as remittent subsequently assumed the yellow fever type, making a total of twelve. Of this number five proved fatal in the Royal Naval Hospital, including the chaplain of this ship.

"In consequence of the prevalence of yellow fever at Port Royal and Kingston, all the white troops stationed at the garrison at Port Royal were removed to New Castle, with the exception of a few men who were left in charge at the garrison, all of whom soon fell victims to the disease. During this quarter the disease had prevailed in a fatal form among the merchant seamen and persons lately arrived from England, and cases had almost invariably followed leave granted to the ships' companies at Kingston or Port Royal. On the 9th of April the Aboukir was removed further

* *Ante*, p. 101.

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further out, and moored to the Admiral's buoy, bearing about east south east, and about a quarter of a mile from the town of Port Royal, and the ship thoroughly cleansed, whitewashed, and painted, and additional means of ventilation supplied, and all communication with Port Royal and Kingston, as far as could be, stopped, and restrictions placed on ship visiting.

"During the quarter ending the 30th of September the ship had been comparatively free from diseases of a febrile character, and no case of yellow fever occurred in the ship during that period, although yellow fever was prevalent at New Castle among the troops, and in several parts of the island of Jamaica. There were 102 cases added to the sick-list (only nine of which were of a febrile character); fourteen of this number were sent on board from the Royal Naval Hospital, which was placed in quarantine on the 12th of September, owing to several cases of fever having been admitted into hospital from Her Majesty's Ship Jason, which ship had only lately arrived from Port Antonio. The ship's company was allowed leave to Port Royal only, on the 6th of September.

"During the succeeding and last quarter, there had been again a considerable increase in the number of fever cases, three or four of which assumed the yellow fever type in hospital. All the men attacked had been on leave at Port Royal at different periods, the longest being in the case of a Marine who had been last on leave at Port Royal on the 14th of September, twenty-eight days previous to his being placed on the sick-list. I am not aware that there were any cases of the disease in Port Royal at the time of the occurrence of these cases, and I think it not at all unlikely that the men, when on leave, made their way up to Kingston at dusk, returning to Port Royal early on the following morning, as many of them had their places of resort at Kingston, and no doubt preferred it to Port Royal; the disease in all these cases was mild in character. . . . . I believe Kingston and Port Royal to be the great sources of contagion, and that the disease, in the majority of instances, was contracted at these places, more particularly at Kingston, where I have no doubt the crews of the men-of-war and merchant seamen met, and frequented the same haunts, and were guilty of excesses. I am led to believe this, from the fact that the spread of the disease has been checked in every instance when leave to Kingston and Port Royal had been stopped, a measure that had frequently to be resorted to."

Two cases of yellow fever appear in the returns from the Barracouta, one in the Midsummer, and the other in the Christmas quarter of the year; both occurred in persons previously debilitated by attacks of remittent fever, and although both recovered, it was necessary to invalid one in consequence of the resulting weakness. In both instances the disease was contracted at Port Royal.

There were thirteen cases of yellow fever in the Cadmus, all

all of which occurred during the Midsummer quarter of the year. In Table IV. a death from this disease appears in connection with the Cadmus; it occurred in the person of a Marine who was attacked with the disease while under treatment for secondary syphilis in the Royal Naval Hospital at Jamaica, and was not one of the thirteen cases recorded, none of which had a fatal termination. At the close of the previous year, yellow fever having appeared in the Cadmus, she had been sent to the northward, as far as Bermuda, with a view to checking the progress of the disease, and re-establishing the health of the ship's company. In consequence of there being four convalescent cases of yellow fever on board, on her arrival the vessel was placed in strict quarantine for ten days, at the expiry of which time, the convalescents having been placed in the Lazaretto at Port Island, she received pratique. She remained at Bermuda until the 14th of February, when she was ordered to return to Port Royal, touching at Barbados on the way: the surgeon* says:—

"These orders we complied with, and left Bermuda on the morning of the 14th of February, arriving at Barbados on the afternoon of the 27th of the same month, having, with the exception of twenty-four hours steaming on leaving Bermuda, performed the passage under sail. The weather throughout was very fine, with variable winds, light airs, and calms, the temperature gradually increasing as we got south, from 64° to 80° of Fahrenheit.

"Whilst we were at Bermuda, the ship's company were frequently landed for light Infantry drill, and this exercise undertaken in a temperature varying from 54° to 70° Fahrenheit, was obviously greatly conducive to their health and spirits, as demonstrated by a very sensible decrease in the sick-list. On the 21st of the same month the list was a blank.

"At Barbados we remained from the 27th of February till the 4th of March, when we proceeded to Jamaica. The sick list after our departure from Barbados gradually increased to fifteen, but the majority of the cases entered thereon where catarrhs and slight injuries. On the 10th of March we arrived at Port Royal, where we remained till the 23rd, when we left for Port-au-Prince, Haiti.

"During the thirteen days stay at Jamaica, a mild form of fever, which I have designated ephemeral, and probably depending more upon the solar heat than anything else, prevailed, which raised the sick-list from eight to thirty.

"Two days were spent in steaming between Port Royal and Port-au-Prince; the weather was exceedingly fine, and the fever cases progressed favourably, and on the 31st of March there were only

* Surgeon James Johnstone.

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only two of these under treatment. Port-au-Prince at the time of our visit was said to be very healthy, and free from any epidemic disease.

"During the month of April, at Jamaica, up to the 22nd, the crew enjoyed good health. On the last-named date, however, a Marine was suddenly seized with yellow fever, and sent to hospital next morning. On the same day another suspicious case of fever was entered upon the sick-list, and immediately sent to hospital, and by the 25th four cases of this disease, either confirmed or suspected, were landed at the Naval Hospital. It was now considered advisable to send the ship to sea, and accordingly, on the morning of the 26th, we steamed out of Port Royal harbour, taking a southerly course. On the evening of this day four cases of the yellow type presented themselves for treatment, and on the morning of the 27th other four cases were added to the sick-list. At this juncture it was wisely and humanely resolved to leave the tropics with all despatch, and proceed to the northward, consequently in a few days we were beyond tropical influences, and in less than three weeks in Halifax harbour.

"It is almost unnecessary to state, that as the temperature decreased so did the virulence of the disease abate, and we were barely in the 21st degree of north latitude when the last case occurred, on the 30th of April.

"Compared with the attacks during the first outbreak in December last, the cases now treated of were, although sufficiently alarming in their symptoms, at first, mild; that is to say, there was no suppression of urine, no black vomit, no death; yet the majority of them suffered the sudden febrile accession with prostration, the nausea and extreme irritability of the stomach, with, at times, actual vomiting of a yellowish glairy fluid; and a few showing the dusky countenance and glistening eye had their attacks ushered in by delirium.

"The urine, it may be observed, in these cases, was frequently found to be deficient in chlorides. . . . . I attribute altogether the mildness of this outbreak to the speedy withdrawal of the ship from the tropics, the removal of her from the source of contagion, Port Royal, and the placing of her in a colder latitude."

In the Constance, which was stationed for a considerable time at Port Royal during the prevalence of yellow fever there, there were only four cases of that disease, but of these three proved fatal. One case occurred in the Midsummer quarter of the year, during which period five cases of remittent fever, and seven of febricula appear on the sick-list; one, in the Michaelmas quarter, with one of remittent and four of febricula; and two in the Christmas quarter, with seven of remittent and three of febricula. The surgeon* of

* Surgeon R. W. Beaumont.

of the ship makes the following observations on these cases, and on the treatment of the disease:—

"The immunity from yellow fever which the Constance preserved during the six months and a half she was lying at Port Royal is remarkable. Only four cases occurred. The first was in June, the subject of the attack being a ward-room servant. He had not been on shore, nor out of the ship, and he was not allowed to attend in his master's cabin, so that it could not be traced to washed clothes. He had been complaining for a day or two, but as I was engaged at the Apostles Battery, he did not come under my observation. It commenced at noon, on the 18th, with a rigor; on the morning of the 21st it was found to be malignant fever, and he was at once removed to hospital, where he died on the same evening. He was a man of very low stamina, and a native, I think, of Gibraltar. . . . The second case did not occur until the early part of September; it occurred in the person of a young officer, was very mild, and the recovery speedy. It was contracted on shore through exposure at Port Royal, and subsequently in boats. The third case, that of a marine officer, was contracted at Kingston about a month afterwards, possibly on board the mail packet, where he slept one night, and that afternoon one of the officers had been landed with the disease. He had been away on a visit from the ship for some days in the country, and being a man of low powers, exposure to the sun and over-fatigue, I have no doubt, especially predisposed him to an attack. Then the removal to the ship, and from thence to the hospital, may perhaps have had some influence in lowering him. The disease showed itself on the evening of the 10th, and he died on the 14th at 2.30 a.m. The fourth case, like the first, was contracted on board, and occurred fourteen days after the last one, with which it was probably connected. The subject was a seaman just convalescing from remittent fever, having been over 20 days on the sick-list. On the 23rd he complained of weakness, and his stimulants were increased, but on the 25th he appeared to have a relapse, and in the evening albumen was detected in his urine; he was therefore removed to hospital early in the morning, where he died fifty-eight hours after. Extensive ulceration of the intestines was found on post-mortem examination of the body. No direct communication took place between the last two cases, they being placed, the one forward in a cot in the sick-bay, and the other on the aft deck. The poison must therefore, if there be contagion in the matter, have been conveyed by the medical man or nurse. None of those who slept near the Marine officer the night he was on board, nor any of those who came much in contact with him, suffered at all, and no further case of yellow fever occurred after these. There were a few cases of remittent, but the greater part of the sick-list was due to venereal contracted at Port Royal. . . . . Before leaving the subject of yellow fever, a few words may be said regarding its treatment. If seen and recognised early, and the dose of the poison is not a severe one, and the patient be not broken down by previous disease or intemperate living, and be of a cheerful disposition, the chances are that with *good nursing*, the regular and careful administration

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nistration of food and stimulants, and attending to any particular symptoms that may arise, he will probably recover; but when the dose of the poison imbibed is a large one, or the patient's powers are small, the case is pretty sure to terminate fatally, whatever the treatment. The bisulphite of soda was extolled very much during the latter half of the epidemic, as possessing specific qualities. I believe it to have been very much over-rated, but consider it would be useful in fevers generally, and have prescribed it in a few, but personally I had no opportunity of trying it in a sufficient number of cases of yellow fever on board; it certainly deserves a trial. The Tinctura Warburgii, a patent medicine, was also recommended. I tried it in two cases of remittent fever in which a relapse was feared, and it certainly assisted in bringing on a free action of the skin, but should be sorry to trust to it alone in yellow fever. In epidemics, when the irritation of the stomach does not occur early, I think emetics are frequently of use at the onset, but not after. Usually a mild purgative is required, and the action of the skin should then be promoted, and ice given ad libitum. Tepid sponging should be employed when the skin is hot and dry, and sinapisms to the epigastrium to relieve pain, oppression, or sickness. Too much care cannot be bestowed on the regular and frequent administration of beef-tea and wine, and of the latter perhaps champagne or brandy, or both, will be found the most convenient form.

"Segregation and isolation are the most valuable agents we possess against the spread of yellow fever. If in barracks, the troops should be at once removed and placed under canvas, in as dry a situation as can be found, taking care that the tents are provided with floorings of wood. If in hospital, and, in spite of ventilation and the liberal use of disinfectants, the fever begins to attack the other patients and nurses, they should be thinned out, leaving but a few in each ward, and, if that be not successful, the whole should be cleared out, and if possible placed under canvas, or in another building, while the former one is disinfected and fumigated. Great attention should be paid to the *wash-house* and *laundry*; through carelessness, I have known fever re-introduced into a ward from this cause. The nurses and medical men would do well, while reading the temperature of the axilla, to direct the patient's face to the other side. Two, if not more, of the medical men who contracted fever at Jamaica; did so from neglecting this simple precaution. Another, equally simple, and the neglect of which has lost us several valuable lives, is to avoid visiting the wards or patients on an empty stomach."

Only three cases of yellow fever appear in the returns of the Doris. They all proved fatal, however, and as they occurred at a period when fever, said to have been of the remittent type, was epidemic in the ship; it is more than probable that the true number of cases of the more fatal disease is not here represented. A full history of the epidemic, which includes these cases, has already been given under the head of Continued

tinued and Remittent Fever, so that it is not necessary to make any further remarks on them here.

In the Jason there were ten cases of yellow fever, one of which proved fatal. They all occurred during the Michaelmas quarter of the years, and the particulars of the outbreak are thus given by the surgeon of the ship:—

"On arrival at Port Royal from Vera Cruz, on the 8th of July, the state of health of the ship's company was very low, the bad climate and unnutritious diet, with the monotonous nature of the service there, had told on them; but three weeks at Port Royal, with plenty of good fruit, fresh meat, and vegetables, and a pint of porter each daily, very soon produced visible effects, and a trip to Santa Marta and back, which occupied about three weeks, acted as a beneficial change; so that by the 26th of August, when it was determined to send the ship to Port Antonio, to give general leave to the ship's company, the men generally were healthy and robust, and there were only seven on the sick-list. At this time Port Royal and the shipping there had been entirely free from yellow fever for six weeks; it was, however, thought unadvisable to give leave either there or at Kingston; in the latter town cases had been occurring all the summer, but for three weeks before our departure no case had been seen in the public hospital, and the health officer told me that he had not heard of any in the city. At New Castle the epidemic amongst the 84th had nearly ceased, but from all over the island news of isolated cases kept continually arriving. Savanna la Mar, Montego Bay, and Spanish Town, had all suffered more or less.

"On the morning of the 29th of August we arrived at Port Antonio and anchored in the east harbour. The number on the sick-list had by this time been reduced to three; two contusions and a mild case of rheumatism. The sanitary condition of the ship was excellent, the bilges clean and entirely free from smell.

"Port Antonio is a picturesque little bay, on the north side of the island, almost land locked; the town of Litchfield, with the barracks, &c., stands on a small peninsula jutting into the harbour, which it separates into two divisions, and immediately behind the town rise steep hills covered with most luxuriant tropical vegetation. The shores of the east or windward division of the harbour are pretty dry, but to leeward, about a half a mile from the town, there is a very bad mangrove swamp; the surrounding country is fertile and well watered, numerous rivers run down to the sea at both sides of the town, all of which flood the surrounding country after any rain. Although the thermometer generally showed a high temperature, fresh sea and land breezes made it always agreeable. The season was exceptionally wet, very heavy rains had fallen a day or two before our arrival, and there were occasional heavy showers during our whole stay.

"On arrival, inquiry as to the sanitary state of the place was made,

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by order of the Commodore, before giving leave. The only medical man in the district, an old resident Jamaica practitioner, and in charge of the troops, told me that, though remittent fevers were not usually uncommon, the season was a very healthy one, that he only knew of one light case of fever then under treatment, which was in a house twelve miles from the town. A fortnight before our arrival the assistant surgeon in charge of the troops had been taken ill, and died at a place ten miles from the town. I saw the report of this case made to the army medical authorities, in which it was described as a sporadic case of yellow fever, and ascribed to his very rash and incautious habits in constantly riding through the swamps at night. The respectable inhabitants all concurred in saying that, with this exception, yellow fever had been unknown in the district for at least eleven years. Several men-of-war had given their crews leave during the past year, without bad effects. Under these circumstances it was determined that leave should be given, and accordingly, on the 1st of September, sixty men on the "privileged leave list" went for the afternoon, returning on board at nine p.m. On the 2nd, general leave was given to one watch of 101 men for forty-eight hours, from 8 a.m., and on the 4th to eighty men for the same period. On Sunday the 8th, privileged leave was again given for the afternoon, and the boys were allowed day leave during the week.

"The leave went on in the usual manner. I think there was about the average amount of drunkenness and exposure, but less than was to have been expected after nearly nine months' confinement to the ship, and the dreary monotony of six months at Vera Cruz. During the continuance of the leave, boats were provided twice every evening for those who wished to sleep on board, and a picket patrolled the town up to ten p.m. to prevent men from sleeping in the open air. By the evening of Sunday the 8th of September all had returned to the ship.

"Up to the 7th, the sick-list was clear; on that day an able seaman who had been on leave on the 2nd and 3rd, and was drunk and much exposed to the sun, was attacked with febrile symptoms rather more severe than the ordinary country remittent, and as no remission had taken place by the afternoon of the 8th, I tested his urine, and found a trace of albumen. On the morning of the 8th, another case with the same type of symptoms occurred in another seaman who had returned from his leave on the 6th, having been perfectly sober and careful whilst on shore, and by the morning of the 9th both cases had distinct albuminuria. It now was evident that yellow fever was on board, but as a mail from Port Royal was due early next morning, it was decided on remaining till then, when, under colour of orders from the senior officer, our hurried departure would probably not cause a panic. In the meanwhile the sick were strictly isolated under the top-gallant forecastle. During the next day (the 9th of September) five more cases of fever came under notice, and on the 10th we steamed away to Port Royal, arriving there in the evening, and at 9 p.m. sent to hospital nine cases of fever, five of which had albuminuria, and of these four were in

in the stage of remission with unfavourable symptoms, one having had black vomit before being landed, and another was in a very low state, with epistaxis and constant vomiting.

"During the 11th the ship lay at Port Royal, and three cases were sent to hospital, all with a sudden invasion of acute febrile symptoms, in which frontal headache and lumbar pains predominated.

"On the morning of the 12th another case of the same nature occurred, and was sent to hospital. The ship was then ordered to Halifax with all despatch, and left at 10 a.m.

"Immediately after leaving, it became apparent that there was a large amount of malarial poisoning on board. Cases of miasmatic fever came on the list day after day, and many who suffered in a slighter degree did not go on the list, and do not appear in the Return. The following Table gives some of the particulars:—

Date.	Place, or Latitude and Longitude.	Average of Thermometer for Day.	Number of Cases of Yellow Fever added.	Number of Cases of Remittent and Ephemeral Fever added.	Number of Cases of Fever of Doubtful Type.	Total Number of Fever Cases added.
Sept. 7	Port Antonio	83°	1	-	-	1
„ 8	Ditto	82	1	1	-	2
„ 9	Ditto	84	4	-	1	5
„ 10	Port Antonio and Port Royal	84	-	-	2	2
„ 11	Port Royal	82	-	-	3	3
„ 12	Sailed from Port Royal	83	-	3	1	4
	Lat. N. Long. W.					
„ 13	19° 19′ 74° 22′	84	-	5	-	5
„ 14	21 21 72 32	83	1	4	-	5
„ 15	24 24 71 43	83	-	1	-	1
„ 16	26 36 71 35	83	1	3	-	4
„ 17	29 7 71 35	82	1	3	-	4
„ 18	31 19 70 18	80	-	5	-	5
„ 19	34 19 69 40	79	1	2	-	3
„ 20	37 15 68 17	75	-	1	-	1
„ 21	40 23 66 28	66	—	—	—	—
„ 22	43 27 64 4 Arrived at Halifax at 7 p.m.	62	—	—	—	—

"The cases returned as doubtful were those sent to hospital at Port Royal, who were one day or less under observation.

"The voyage to Halifax was made under steam nearly the whole way, and we were fortunate in experiencing very fine weather. A high temperature was carried unusually far north, the thermometer standing above 80° till within three days of Halifax, but it then

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rapidly decreased to 49° the morning after our arrival. The four cases of yellow fever that occurred during the voyage did well; in all, the access was violent, but the remission favourable; they all had albuminuria; they were kept under the top-gallant forecastle in cots, and carefully isolated in every way.

"During the voyage an allowance of hot chocolate was given to the morning watches when they relieved the deck at 4 a.m.

"On the 24th of September, the first day the weather permitted, the remaining cases, nine in number, nearly all convalescent, were sent to the Halifax Hospital, where they soon regained strength, and the ship has since been cleared out and thoroughly disinfected.

"As to the fate of the thirteen cases left at Port Royal, it is of course impossible to speak; the four longest on the list were almost in a hopeless state, and the others had not been long enough ill to permit of any opinion being formed as to the result. I have adopted the nomenclature in use at Port Royal Hospital during the late epidemic, and called no case yellow fever that did not exhibit albumen in the urine.

"As to the origin of the disease.—After careful inquiries from all available sources, I think it is hardly possible to trace any source of contagion. These little towns are very much isolated, and Montego Bay, the nearest place where we had heard of any fever, is at least 100 miles from Port Antonio, and very difficult to communicate with. The men who were attacked with yellow fever behaved in the most opposite ways possible whilst on shore. The first man attacked, an able seaman, was drunk and much exposed; two other bad cases, a stoker and an ordinary seaman, had been most careful, staying in a different house from the last, sober, not exposed in any way, and given quinine every morning by their landlady, yet four out of this party were attacked. Of the other cases of the same character some had broken their leave, been wet and drunk, and exposed to the sun; others were perfectly sober and well conducted. I found out the houses where each had stayed, and am unable to ascribe immunity or the reverse to any particular locality or line of conduct.

"It seems to me probable, from the extraordinarily wide distribution of yellow fever, and the very irregular outbreaks and isolated cases this last year, that through some of the islands (including Jamaica) the peculiar influences which originate the yellow fever poison have been actively at work. I have been informed by a French naval surgeon, that at Martinique, in last February, the crew of a collier vessel direct from Cardiff were attacked with yellow fever after a good deal of hard work on shore. They lost seven, and these have been the only cases, before or since, in the island for seven years. Perhaps the very close connection between these influences and the source of malaria has never been more clearly shown than in our case. Undoubtedly our whole epidemic is ascribable to the six days spent on shore at Port Antonio by a set of healthy men under the same circumstances; and while the disease manifested itself as most malignant yellow fever in some of the cases, others, commencing with much the same form of attack and early symptoms, were evidently malarial, and at once influenced by quinine.

quinine. Had it not been from the albumen test, it would hardly have been possible to diagnose some of the later cases.

"Whether the later cases of yellow fever put on the list were the commencement of a secondary infection on board, or not, is doubtful. I am inclined to think they were. The last case was put on the list on the 19th, so that, if contracted on shore, his period of incubation would have been fifteen days, while all the first and most severe cases were remarkably quick in showing themselves. His was the last case of fever that appeared, but happily next day the temperature fell to a point which did away with all fear of its spreading.

"As regards treatment little can be said. The only novelty that I tried was chlorodyne, as recommended by Dr. Macdonald, and in some of the worst cases it acted well as a sedative, and appeared to procure the retention of food in the stomach; but the bad cases left us so soon, that happily we had not much opportunity for treatment.

"In conclusion, I must bear witness to the great usefulness of the albumen test, and though I do not consider it quite infallible, yet, in a ship, as in our case, where early detection enables immediate retreat to a more healthy climate, and the cutting short of what, I think, would otherwise have been a most formidable epidemic, its importance cannot be over-estimated."

This officer elsewhere says—

"If the idea that Vera Cruz is the original source of the yellow fever poison be correct, its gradual spread from that centre, with radii lengthening slowly with the extension of commerce and steam communication is very interesting. That city is at no season exempt from the disease; foreigners and people from the higher lands of Mexico are almost certain to be attacked after a short residence. The inhabitants believe those born in the place to be proof against infection and, so firm is this belief in the district, that pregnant women, natives of the country, frequently come long distances, even from Europe, in order that their offspring may, as they believe, obtain the freedom, as it may be called, of Vera Cruz, the head quarters of this frightful pestilence. I cannot vouch for the efficacy of the measure, but it is firmly believed in by all the intelligent people with whom I have spoken on the subject. Starting from Vera Cruz to its nearest neighbouring cities, Havana and New Orleans have proved hotbeds in which the seed sown has become fatally fruitful. The tracing back so far of every late epidemic becomes a simple matter. I have now been on the station for the last seven years, and seen something of all the epidemics during that period, and do not recollect any case (except that of the Firebrand, in 1861) in which the origin could not be traced with ease to one of these places. During the blockade-running times it was only the increased reckless steam communication with Havana that caused the loss of life at Nassau and Bermuda; Wilmington, North Carolina, being intermediate in the latter case; and last year's Jamaica epidemic, imported from St. Thomas's, is still primarily from Havana. I would here record my belief that did the Jamaica authorities include yellow fever in their quarantine restrictions (and

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why they did not I cannot say) much of the loss of valuable life would have been prevented."

A single case of yellow fever appears in the returns from the Niger: it occurred in the person of a young officer who was taken ill when on leave at Vera Cruz, where eight days before he was attacked he had been shooting on a very hot day, and had afterwards walked a long distance. He slept at Vera Cruz that night, and returned to the ship, not making any complaint. He again went away on leave, and while absent in the country being taken ill, he immediately returned to Vera Cruz, when his symptoms assumed so serious a character as to forbid his being taken on board the ship. From the description given of his symptoms and general appearance, the case appears to have partaken more of the character of insolation than of a specific fever. As the vessel left the Gulf on the day after his arrival at Vera Cruz, he was left behind.

There were seventeen cases of yellow fever in the Wolverene, four of which had a fatal termination. All this disease occurred during the Christmas quarter of the year, and appears to have been the result of communication with St. Thomas's and Tortola, at which latter island special leave was given. The report of the surgeon* of the ship on this epidemic is as follows:—

"The seventeen cases returned under this heading [yellow fever] occurred in the month of December, during the stay of the ship in the West Indies; and four deaths took place between the 16th and 23rd of December inclusive. Before giving the particulars of the fatal cases, I shall briefly state what happened during our visit to the Virgin Islands; the first appearance of the disease, and the history of the cases as they occurred; with the movements of the ship from the time she left Halifax on the 20th of November, as it may throw some light on the appearance of this fatal malady amongst the officers and ship's company.

"Upon arriving at Tortola, the report of the health of the town was good, the authorities stating that, in consequence of strict quarantine laws being observed, the island had been free from yellow fever, small-pox, and cholera for the last two years, although these diseases had prevailed with great virulence in St. Thomas, and other West Indian Islands. At the same time they told us that yellow fever still continued at St. Thomas, both in the town and among the shipping.

"Under these circumstances, when the ship arrived off St. Thomas's, the captain placed her in quarantine, and this effectually prevented all

* Surgeon D. Wilson.

all intercourse with the infected inhabitants. After lying two hours off the entrance of the harbour, the ship was moved to the anchorage at West Gregorie Channel, near to where the Royal mail steamers now await the arrival of the ocean boat. The ship, during her stay at this place, was at least two miles from the town of St. Thomas's, and there was no other vessel near her. The only boats allowed to leave were the captain's gig, and the second gig on duty to communicate with the consul and mail packets, and on each occasion with the quarantine flag flying. I may here mention that none of the boats' crews have been ill.

"During the interval between our arrival at Tortola on the 4th of December, and leaving on the 14th, forty special leave men and boys were granted leave from 3.30 p.m. to 8 p.m. on the 8th of December, and symptoms of fever of a remittent type appeared on the evening of the 10th, in a boy who had been on shore. He complained of violent headache, pain in the back, great thirst, and a burning hot skin; when I first saw him he was crying from pain, and did not know what to do with himself. He was given black draught with five grains of quinine. On the 13th he was up and walking about.

"On the morning of the 12th an ordinary seaman complained of great oppression on the chest, headache, and pain in the back. He had not been out of the ship since leaving Halifax. On the same morning a young officer who had only been two hours out of the ship was placed on the list suffering from the same violent symptoms. Two days after, a quartermaster, who had once landed with an officer to take sights, an able seaman, and a gunner's mate were placed on the list with so mild a form of fever that it was for the time called febricula; also a petty officer, who was under treatment for rheumatism, complained of feverishness of the same mild nature. On the afternoon of the 15th, whilst lying at West Gregorie Channel, off St. Thomas's, the first untoward symptoms appeared in the case of the young officer, and he died twelve hours afterwards with black vomit.

"As soon as the type of the disease was recognised, I recommended that the ship should proceed to sea as soon as possible, and accordingly we left the same evening at 5 p.m. (the 15th).

"On the 16th, five Marines were placed on the list for fever; two of them had been doing duty as sentry on the forecastle at St. Thomas's and Tortola; one had been attending on the young officer who died, and the other had been employed at their regular duties. They are all doing well, and may be considered as cases of remittent fever.

"On the evening of the 17th, the captain's coxswain was noticed to be lying down in the pantry. As he could go about and attend to his ordinary duties, nothing more was thought about it. The same evening the ordinary seaman who had been placed on the list on the 12th, died with black vomit and convulsions.

"On the 18th, the captain's coxswain was found to be suffering from fever, and the state of his tongue showed that there was great irritation of the stomach, although there was no vomiting, and but

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little nausea. At the same time three others were placed on the list for fever.

"On the 20th, the quartermaster died. He had black vomit twelve hours before his death. On the morning of the 21st, a ward-room officer was placed on the list with fever. He was attacked suddenly with pain in the back, headache, hot skin, and great thirst, and shortly afterwards with violent retching and vomiting. This was the last case which occurred.

"The ship arrived at Bermuda on the afternoon of the 22nd of December, and early on the following morning the captain's coxswain died comatose. He had no black vomit. On the 23rd, the ward-room officer, three seamen, and three Marines were landed at the Quarantine Hospital at Ports Island; the ship in the meantime lying in Grassy Bay, under the observation of the health officer, and kept in strict quarantine.

"During the prevalence of the disease on board every precaution was taken to prevent the spread of so fatal a malady amongst the crew. The worst cases were separated from the rest as much as possible, and as soon as taken ill they were either placed under the forecastle or abaft the mizen-mast. Ventilation was thus kept up amongst the sick, and the general management of the patients better attended to. All bedding and clothes used by those who died were carefully destroyed, and wherever disinfectants were required, they were freely employed.

"Nothing but the immediate removal of the ship to a northern latitude could have saved the complete decimation of the officers and ship's company. The rapid convalescence of the sick at Quarantine Island is very marked."

Although the result may appear to have justified the step taken in limiting the northward voyage of the Wolverene to Bermuda, and to indicate that, under favourable circumstances, during the winter season, that island may afford an asylum to ships similarly circumstanced, there can be little doubt that it was but a half-measure, and that no yellow-fever-stricken ship fleeing from the West Indies should be considered safe until at anchor in Halifax harbour. A few hot days at Bermuda might have rapidly fanned the expiring fever poison into a state of activity, which might have proved alike disastrous to the ship's company, and to the community on shore.*

Scarlatina.—Two cases of this form of eruptive fever appeared in the squadron, one in the Aurora, the other in the Cadmus. The case in the Aurora occurred in the person of a young

* For further details in connection with the Yellow Fever Epidemic in the Royal Naval Hospital at Port Royal, see Appendix, No. 2.

a young officer, who, five days previously, while out with a shooting party, was overtaken by a snowstorm, and compelled to take shelter in a roadside inn, where, it was afterwards discovered, two children were laid up with scarlet fever, and one or two others of the family were just recovering from it: there the disease was no doubt contracted. The case went on favourably, but much distress was occasioned during convalescence by severe neuralgic pains.

The case of scarlatina in the Cadmus also occurred in the person of an officer, who, while at North Sydney, Cape Breton, visited a house in which several members of the family were labouring under the disease, which was epidemic in the neighbourhood at the time. He made a good and rapid recovery.

Diseases of the Brain and Nervous System.—There was a reduction in the ratio of cases coming under this head compared with the preceding year, and the reduction in the ratio of mortality was very considerable. The invaliding rate in both years was precisely the same. Eighty-three cases altogether of various forms of disease were under treatment, of which seventeen were invalided, and one proved fatal. Nearly one-half of those invalided were the subjects of epilepsy.

The fatal case was one of apoplexy. It occurred in the person of a seaman of the Sphinx, who, the day previous to his attack, had returned on board the ship after forty-eight hours' leave. He had evidently been drinking hard, and complained, on presenting himself for treatment, that he was ill and unfit for duty, from which he was accordingly excused. In the afternoon he was better, he said, having slept a good deal, and eaten something. On the following morning he was found lying on the lower deck under his hammock, breathing stertorously. The pulse was natural, and the skin cool; there was no congestion of the head or neck, the eyelids were closed, and the hands were not clenched, nor the limbs rigid. The pupils were dilated, equally, and insensible to the action of light. He continued unconscious for about twenty minutes after he was seen, when he died without convulsions. No vomited matters were found about the hammock or the deck. On post-mortem examination of the body, a large quantity of dark fluid blood was found extravasated between the dura mater and the surface of the brain. It was supposed that the man had fallen from his hammock to

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the deck, and thus caused rupture of some of the cerebral vessels, although there were no external marks to indicate this.

Diseases of the Organs of Respiration.—There was a reduction in the ratio of cases coming under this head, compared with the preceding year, equal to 24·8 per 1,000; the invaliding rate was, however, a little higher; but the death-rate was precisely the same in both years.

As in the previous year, catarrh was very prevalent in the Aurora, which was stationed at Quebec during the first nine months of the year, the weather during a considerable portion of that time being exceedingly severe.

Diseases of the Heart and Bloodvessels.—There was a considerable increase in all the ratios coming under this head, compared with the preceding year. Ninety-one cases altogether were under treatment, and of these, eighteen were invalided, and four had a fatal termination.

A death from disease of the heart appears in Table IV., in connection with the Constance; it occurred in the person of a petty officer who had just arrived from England, and who presented himself complaining of faintness, and of pain in the abdomen, extending to the back, which he attributed to eating some "cold heart" at breakfast. He stated, that he had always enjoyed fair health, and had only felt some palpitation on one occasion on the passage out, but did not deem it of sufficient importance to report it. He said that the faintness had come on while at the "Head" after muster, but he had felt ill since breakfast; some ammonia with camphor was given him, and he was placed in bed. He felt much better until 11h. 40m. a.m. when he went to the sick-bay water-closet, where he again fainted. On being seen a few minutes afterwards, he was found to be much exhausted, and perfectly blanched, the extremities getting cold, and the circulation feeble. Stimulants were given at once, and continued as long as he could swallow, and warmth applied to the extremities, but without the slightest good result. He complained of severe pain in the abdomen, and a strong pulsation as of an aneurism was felt immediately below and to the right of the apex of the heart. He died at 1h. 30m. p.m., with all the appearance of internal hæmorrhage. On post-mortem examination of the body, general congestion of all the internal organs was found, especially of the lungs and liver.

liver. The pericardium contained seven ounces of serum, but there was no trace of hæmorrhage in any of the cavities, and no inflammatory action. The right ventricle and the right auricle were normal; on the left side the ventricle was of ordinary thickness, but the mitral valves were incompetent. The aortic valves were healthy, but immediately behind there was a dilatation of the aorta of the size of a hen's egg, which projected backwards, covering the left auricle, but only communicating with the aorta. On the inside was an ulcerated patch of the size of a florin, but no hole was detected. No fibrine nor clot was observed there or elsewhere. The aorta, traced throughout its course, was healthy and free from atheromatous deposit. The head was not examined, as there was no cerebral disturbance. The body was well nourished, but exceedingly anæmic.

The immediate cause of death, according to the opinion of the surgeon of the ship, was connected with straining at stool; the incompetency of the mitral valves allowing of regurgitation.

A case of rheumatic pericarditis proved fatal in the Doris. It occurred in the person of a coloured man, a servant, whose rheumatic symptoms were not at any time of an acute character. On the seventh day after being entered on the sick-list, his feet were found to be œdematous, and at 11.40 p.m. of the same day he was moribund, and breathing with great difficulty from evident accumulation of fluid in the air-tubes. He did not rally, but expired a few minutes before midnight. Post-mortem examination of the body revealed extensive effusion into both pleuræ and pericardium. This effusion was supposed to have taken place within the last few hours of his life. There were no other marked morbid appearances.

A seaman of the Favourite, who had been on leave, was brought on board the vessel in a state of violent excitement from drink. About two hours afterwards it was noticed that he was unusually quiet, and, on examination, life was found to be extinct. During his period of service in the ship, he had been nine times on the sick-list for periods varying from two to sixty-two days, and he had suffered from scrofula and disease of the heart. On examination of the body after death, an alcoholic odour was emitted on opening the chest. The walls of the left ventricle of the heart were found hypertrophied; the cavity was of normal size, and contained a small

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clot and some blood. The aortic valves were thickened and much enlarged; the right ventricle was unusually thin and flabby, and contained no blood. Death was considered to have arisen from heart disease, accelerated by alcoholic poisoning.

In Table IV., a death from aneurism of the aorta appears in connection with the Aboukir. It occurred in the person of a petty officer, who, from the symptoms he presented, was supposed to be labouring under intermittent fever, and was sent to Jamaica Hospital for the treatment of that disease. On admission he complained of general muscular pains. He had rigors at 11h. a.m., lasting fifteen minutes; he stated that he was in good health up to 10h. a.m. of the morning of his admission, and that he had returned from one night's leave at Port Royal, at 8h. a.m. The aguish symptoms continued throughout, and seemed not to be influenced in any way by the treatment to which he was subjected. They were accompanied by severe pain at the epigastrium and in the chest, which was usually relieved by a chloroform draught. He died suddenly fourteen days after his admission to hospital, having, about two minutes before his death, been seized with violent pain in his chest, and difficulty of breathing; he had also coughed up some blood. On post-mortem examination of the body, a large firm coagulum of blood was found in the right pleural cavity, and on removing the lung an aneurism of the aorta which had burst was discovered, it was of a size large enough to contain the clenched fist, and contained a large black laminated coagulum. The walls of the sac were adherent to the surrounding tissues, and easily ruptured. The aneurism was lying entirely on the right side of the spinal column, with the exception of a small portion which was in contact with the third and fourth dorsal vertebræ, which were denuded, leaving exposed sharp spiculæ of bone.

Diseases of the Alimentary Canal.—The ratio of cases and of invaliding under this head were almost precisely the same as in the preceding year, but there was no mortality from these diseases. Altogether, 541 cases of disease of various kinds were under treatment, of which 450 were cases of diarrhœa; two of these were invalided.

The vessels that suffered most from diarrhœa were the Aurora and the Wolverene. In the former, the disease prevailed

vailed epidemically in the month of August, when the ship was at Quebec. In several instances the attack was severe, with discharges of a choleraic nature; they, however, quickly yielded to treatment, the average duration of each case being under four days.

There were sixty-seven cases altogether of diarrhœa in the Wolverene, fifty-three of which occurred in the Michaelmas quarter of the year, when the vessel was at Montreal; they were, as a rule, of a very slight character. The symptoms were nausea, griping pains in the bowels, and a copious watery discharge from the alimentary canal, which generally lasted from three to five days. The disease was prevalent on shore, and the principal exciting causes were supposed to be hot weather, with sudden changes of temperature, and sometimes dietetic errors.

Diseases of the Genito-Urinary Organs.—There was a slight reduction in the ratio of cases coming under this head, compared with the preceding year; but the invaliding rate was higher. There was no loss by death from these diseases. One hundred and ninety-one cases of primary syphilis, seventy-six of secondary syphilis, and one hundred and two of gonorrhœa were under treatment, and of these, ten cases of secondary syphilis were invalided. The average number of men daily under treatment for these diseases was thirty-two.

As during the previous year, Port Royal still retained its notoriety as a hot-bed of venereal diseases. The surgeon of the Constance observes:—

"During the limited leave given at Port Royal in September and October, a large amount of disease was contracted. From the smallness of the place and the limited number of the women, as well as the nature of the sores, &c., it is highly probable that the same person was the medium of communicating disease to a large number. Gonorrhœa was found to be more commonly associated with the syphilitic poison than at Barbados, while the secondary eruptions were as frequent a sequel to it; some of them appearing before the primary sores were healed. In one case the eruption closely resembled confluent small-pox, and in others the secondary symptoms were most severe. The inguinal glands were more frequently affected than at Barbados, and the hard chancre more common than the soft; the disease, in fact, would appear to be of a lower type, *i. e.*, modified by the state of health of the men infected. Repeated examinations were made while leave was being given, and with benefit; but on the 25th of October the cases had become so numerous that all further leave was stopped; *e. g.*, on the 1st of

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October there were eleven cases on the list, and on the 25th there were twenty-one more.

"A very small expense, on the part of the Government, would suffice to clear Port Royal of Disease, and in no place is an inspector under the Contagious Diseases Act more urgently required, while in few could it be more effectually carried out. Kingston should of course be included, and no half measures adopted; and being partly for the protection of our sailors and soldiers, and partly to prevent the spread of disease imported by them, it is but fair that the principal expense should be borne by the Home Government; at any rate, it would be a vast pecuniary saving to pay the whole, rather than wait for the action of the local authorities of an island whose finances are at so low an ebb."

The surgeon of the Jason, in remarking on the trifling number of cases of venereal disease that had appeared among the ship's company, observes:—

"It is to the absence of leave-giving at Port Royal that we owe our comparative immunity this year."

In Halifax, on the other hand, these diseases appear to be by no means frequent, and several medical officers bear testimony to this effect. The staff surgeon of the Royal Alfred, says:—

"In Halifax, as far as my own personal experience goes, constitutional syphilis is a very rare complaint. We had not had a single case in this ship between May and December. The reason of this singular rareness of the disease may be attributed to the fact that the municipal authorities use most stringent measures in putting down houses of ill-fame, and repressing prostitution in all its phases, by the infliction of heavy fines and even imprisonment. These repressive measures are not confined to the unfortunate women, who are 'more sinned against than sinning,' but to the other sex, who have originally been the cause of their shame and degradation. Any man found within a brothel, or even seen conversing with a prostitute, is, I am told, liable to be taken by the police before a magistrate, and there answer for his unseemly conduct."

Wounds and Injuries.—Four men were killed by falling from aloft. Two of these sustained fatal fracture of the skull; one, fracture of the cervical vertebræ; and one, fracture of the jaw and bones of the face, and other injuries. A man fell into the mainhold of a ship, and fractured his skull; and a man died from the effects of amputation of his leg.

Twelve men were drowned; six by falling overboard; one by falling from a wharf; one was knocked overboard by another man who fell from aloft; one was drowned while bathing,

bathing, and three were capsized in a coal-barge alongside their ship.

The cause of death in one instance is not given.

The total number of deaths was sixty-five which is in the ratio of 12·1 per 1,000 of mean force, being an increase compared with the preceding year equal to 2· per 1,000, and almost altogether attributable to the greater prevalence of yellow fever.

Invalided.—Six persons were invalided for the sequelæ of fever; seventeen for diseases of the brain and nervous system; thirty-nine for diseases of the organs of respiration, of whom twenty-nine laboured under pulmonary consumption; eighteen for diseases of the heart and bloodvessels; two for diseases of the alimentary canal; four for disease of the liver; fifteen for diseases of the genito-urinary organs, ten of whom suffered from constitutional syphilis; sixteen for rheumatism; one for diseases of the bones and joints; four for diseases of the special senses; twelve for diseases of the skin and cellular tissue; twenty for diseases not classed; five for wounds and injuries of various kinds; and four for hernia. The total number invalided was 163, which is in the ratio of 30·5 per 1,000 of mean force, being an increase, compared with the preceding year, equal to 2·7 per 1,000.

Taking an average of ten years, there was a decrease in the ratio of cases of disease entered on the sick-list of this squadron in 1867, equal to 159·5 per 1,000 of mean force; and of mortality to the extent of 6·9 per 1,000. There was an increase in the invaliding rate equal to 1·2 per 1,000.

TABLE, No. 1.

SHOWING the Number of Cases of all DISEASES and INJURIES, and the Number INVALIDED and DEAD, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Continued and Remittent Fever	795	156·4	5	·9	2	·3
Yellow Fever	54	10·6	-	-	19	3·5
Intermittent Fever	72	14·1	1	·1	—	—
Scarlatina	2	·3	—	—	—	—
Disease of the Brain	1	·1	—	—	—	—
Apoplexy	1	·1	-	-	1	·1
Insolation	2	·3	—	—	—	—
Epilepsy	18	3·5	8	1·5	—	—
Paralysis	4	·7	3	·5	—	—
Insanity	6	1·1	5	·9	—	—
Delirium Tremens	22	4·3	—	—	—	—
Neuralgia	14	2·7	1	·1	—	—
Vertigo	15	2·9	—	—	—	—
Inflammation of the Lungs and Pleura	89	17·5	5	·9	4	·7
Phthisis and Hæmoptysis	38	7·4	29	5·4	10	1·8
Influenza and Catarrh	790	155·5	1	·1	—	—
Cynanche	184	36·2	2	·3	—	—
Asthma	6	1·1	2	·3	—	—
Disease of the Heart, Functional and Organic	57	11·2	15	2·8	3	·5
Hæmorrhoids	22	4·3	—	—	—	—
Varix	10	1·9	2	·3	—	—
Aneurism	2	·3	1	·1	1	·1
Disease of the Stomach and Bowels	4	·7	—	—	—	—
Dysentery	15	2·9	—	—	—	—
Diarrhœa	450	88·5	2	·3	—	—
Constipation and Colic	72	14·1	—	—	—	—
Disease of the Liver	13	2·5	4	·7	—	—
Jaundice	5	·9	—	—	—	—

Table, No. 1.—Showing the Number of Cases of all Diseases and Injuries, &c.—*cont^d.*

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	13	2·5	1	·1	—	—
Syphilis, Primary	191	37·5	—	—	—	—
Syphilis, Secondary	76	14·9	10	1·8	—	—
Gonorrhœa	102	20·	—	—	—	—
Orchitis	97	19·	3	·5	—	—
Stricture	25	4·9	—	—	—	—
Incontinence of Urine, &c.	2	·3	1	·1	—	—
Rheumatism	410	80·7	16	3·	—	—
Gout	7	1·3	—	—	—	—
Disease of the Bones and Joints	23	4·5	1	·1	1	·1
Inflammation of the Eyes	51	10·	2	·3	—	—
Amaurosis and Cataract	6	1·1	2	·3	—	—
Otitis and Deafness	25	4·9	—	—	—	—
Erysipelas	20	3·9	-	-	1	·1
Scrofula	11	2·1	3	·5	—	—
Bubo (*Symp.*)	85	16·7	—	—	—	—
Phlegmon and Abscess	1,359	267·5	2	·3	—	—
Ulcer	356	70·	5	·9	—	—
Psora	21	4·1	—	—	—	—
Eruptions, &c.	50	9·8	2	·3	—	—
Dyspepsia and Debility	292	57·4	17	3·1	1	·1
Dropsy	4	·7	-	-	2	·3
Worms	3	·5	—	—	—	—
Headache	57	11·2	3	·5	—	—
Pyæmia	1	·1	-	-	1	·1
Wounds and Injuries	1,304	256·6	5	·9	6	1·1
Burns and Scalds	62	12·2	—	—	—	—
Hernia	15	2 9	4	·7	—	—
Drowned	-	-	-	-	12	2·2
Not stated	-	-	-	-	1	·1
TOTAL	7,431	1462·7	163	30·5	65	12·1

TABLE, No. 2.

SHOWING the Number of DAYS' SICKNESS from each DISEASE, and from INJURIES, the Average Number of Men Sick Daily, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Continued and Remittent Fever	6,688	2,960	9,648	26·4	4·9
Yellow Fever	584	1,535	2,119	5·8	1·
Intermittent Fever	699	13	712	1·9	·3
Scarlatina	35	-	35	—	—
Disease of the Brain	1	10	11	—	—
Apoplexy	1	-	1	—	—
Insolation	20	-	20	—	—
Epilepsy	215	33	248	·6	·1
Paralysis	50	179	229	·6	·1
Insanity	39	-	39	·1	—
Delirium Tremens	99	48	147	·4	—
Neuralgia	83	54	137	·3	—
Vertigo	50	5	55	·1	—
Inflammation of the Lungs and Pleura	1,480	448	1,928	5·2	·9
Phthisis and Hæmoptysis	1,040	622	1,662	4·5	·8
Influenza and Catarrh	6,203	29	6,232	17·	3·1
Cynanche	1,300	241	1,541	4·2	·7
Asthma	44	18	62	·1	—
Disease of the Heart, Functional and Organic	1,098	511	1,609	4·4	·8
Hæmorrhoids	247	78	325	·8	·1
Varix	165	-	165	·4	—
Aneurism	32	-	32	—	—
Disease of the Stomach and Bowels	29	-	29	—	—
Dysentery	120	73	193	·5	—
Diarrhœa	2,336	126	2,462	6·7	1·2
Constipation and Colic	332	28	360	·9	·1
Disease of the Liver	183	81	264	·7	·1
Jaundice	83	49	132	·3	—

Table, No. 2.—Showing the Number of Days' Sickness from each Disease, &c.—*cont*[d].

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	114	113	227	·6	·1
Syphilis, Primary	5,829	1,666	7,495	20·5	3·8
Syphilis, Secondary	2,282	112	2,394	6·5	1·2
Gonorrhœa	1,870	138	2,008	5·5	1·
Orchitis	1,977	54	2,031	5·5	1·
Stricture	221	172	393	1·	·1
Incontinence of Urine, &c.	18	-	18	—	—
Rheumatism	5,335	982	6,317	17·3	3·2
Gout	106	88	194	·5	—
Disease of the Bones and Joints	407	90	497	1·3	·2
Inflammation of the Eyes	503	63	566	1·5	·2
Amaurosis and Cataract	26	-	26	—	—
Otitis and Deafness	195	-	195	·5	—
Erysipelas	283	25	308	·8	·1
Scrofula	412	20	432	1·1	·2
Bubo (*Symp.*)	2,439	65	2,504	6·8	1·2
Phlegmon and Abscess	13,760	357	14,117	38·6	7·2
Ulcer	6,794	527	7,321	20·	3·7
Psora	249	72	321	·8	·1
Eruptions, &c.	770	334	1,104	3·	·5
Dyspepsia and Debility	1,954	845	2,799	7·6	1·4
Dropsy	119	-	119	·3	—
Worms	10	-	10	—	—
Headache	360	-	360	·9	·1
Pyæmia	6	-	6	—	—
Wounds and Injuries	13,187	631	13,818	37·8	7·
Burns and Scalds	687	26	713	1·9	·3
Hernia	288	54	342	·9	
TOTAL	83,457	13,575	97,032	265·8	49·8

TABLE, No. 3 - - - - - - -

SHOWING the Number INVALIDED from each Ship employed - - -

CAUSE of INVALIDING.	Aboukir.	Aurora.	Barracouta.	Cadmus.	Constance.	Cordelia.	Cygnet.	Doris.	Duncan.
Continued and Remittent Fever	–	–	–	–	–	–	–	4	–
Intermittent Fever	–	–	–	–	–	–	–	1	–
Insanity	–	–	–	–	–	–	–	–	–
Epilepsy	–	–	1	1	–	–	–	–	–
Paralysis	–	–	–	–	–	–	–	–	–
Neuralgia	–	–	–	–	–	–	–	–	–
Inflammation of the Lungs and Pleura	–	–	–	–	–	–	–	1	–
Phthisis and Hæmoptysis	2	1	1	1	4	–	–	3	4
Catarrh	–	–	–	–	–	–	–	1	–
Cynanche	–	–	–	1	–	–	–	1	–
Asthma	–	–	–	–	–	–	–	–	–
Disease of the Heart, Functional and Organic	1	–	3	–	4	–	–	–	–
Varix	–	–	–	1	1	–	–	–	–
Aneurism	–	–	–	–	–	–	–	–	–
Diarrhœa	–	–	–	–	–	–	–	1	–
Disease of the Liver	–	–	–	–	–	1	–	–	–
Inflammation of the Kidneys and Bladder	–	–	–	–	1	–	–	–	–
Syphilis, Secondary	–	–	–	1	1	–	1	–	–
Orchitis	–	–	–	1	1	–	–	–	–
Incontinence of Urine	–	–	–	–	–	–	–	–	–
Rheumatism	–	1	–	1	1	–	1	5	–
Diseases of the Bones and Joints	–	–	–	–	–	–	1	–	–
Inflammation of the Eyes	1	–	–	–	–	–	–	–	–
Amaurosis and Cataract	–	–	–	–	–	–	–	–	–
Scrofula	–	–	–	1	1	–	–		–
Abscess	–	–	2	–	–	–	–	–	–
Ulcer	–	–	–	–	–	–	–	3	–
Eruptions, &c.	–	–	–	1	–	–	–	–	–
Dyspepsia and Debility	–	–	1	2	1	–	1	8	–
Headache, &c.	–	–	–	–	–	–	–	3	–
Wounds	–	–	1	–	1	–	–	–	–
Hernia	1	–	–	–	–	–	1	–	–
TOTAL	5	2	9	11	16	1	5	31	4

TABLE, No. 3.

on the NORTH AMERICAN AND WEST INDIAN STATION.

Favorite.	Fawn.	Gannet.	Gunboats.	Jason.	Niger.	Nimble.	Phœbe.	Royal Alfred.	Sphinx.	Steady.	Terror	Wolverene.	TOTAL.
–	–	–	–	–	–	1	–	–	–	–	–	–	5
–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	1	1	1	2	–	–	–	5
–	2	1	–	–	–	–	–	1	2	–	–	–	8
–	–	1	–	–	1	–	–	1	–	–	–	–	3
–	–	–	–	–	–	–	–	–	–	1	–	–	1
–	–	–	–	–	–	–	–	3	–	–	1	–	5
1	–	1	1	4	–	1	–	3	–	–	2	–	29
–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	2
1	–	–	–	–	–	–	–	–	1	–	–	–	2
–	–	–	1	2	–	–	–	1	1	–	–	2	15
–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	1	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	1	–	–	2
–	–	–	1	–	–	–	–	–	1	–	1	–	4
–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	6	1	–	–	–	10
1	–	–	–	–	–	–	–	–	–	–	–	–	3
–	–	–	–	–	–	–	–	–	–	–	–	1	1
3	–	–	–	–	2	–	–	–	–	–	1	1	16
–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	1	–	–	2
–	–	–	–	–	–	–	–	2	–	–	–	–	2
1	–	–	–	–	–	–	–	–	–	–	–	–	3
–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	2	–	–	–	–	5
–	–	–	–	1	–	–	–	–	–	–	–	–	2
–	–	–	–	1	–	–	–	–	–	1	2	–	17
–	–	–	–	–	–	–	–	–	–	–	–	–	3
–	–	1	–	–	–	–	1	–	1	–	–	–	5
1	–	–	–	–	–	–	–	1	–	–	–	–	4
8	2	4	3	9	3	3	2	21	9	4	7	4	163

TABLE, No. 4. - - - - - - - -

SHOWING the Number of DEATHS in each Ship employed - - -

CAUSE OF DEATH.	Aboukir.	Aurora.	Cadmus.	Constance.	Doris.	Duncan.	Favorite.
Continued and Remittent Fever -	–	–	–	–	–	–	–
Yellow Fever - - - - -	7	–	1	3	3	–	–
Apoplexy - - - - - -	–	–	–	–	–	–	–
Inflammation of the Lungs and Pleura - - - - -	–	1	1	–	1	–	–
Phthisis - - - - - -	1	–	–	2	2	2	2
Disease of the Heart - - -	–	–	–	1	1	–	1
Aneurism - - - - - -	1	–	–	–	–	–	–
Disease of the Bones and Joints -	–	–	–	–	1	–	–
Erysipelas - - - - - -	–	–	–	–	–	–	–
Pyæmia - - - - - -	–	–	–	–	–	–	–
Dropsy - - - - - -	1	–	–	1	–	–	–
Debility after Fever - - -	–	–	–	–	–	–	–
Wounds and Injuries - - -	–	–	–	1	1	1	1
Drowned - - - - -	1	–	2	–	–	–	–
Not stated - - - - -	–	–	–	–	–	–	–
TOTAL - - -	11	1	4	8	9	3	4

- - - - - - - - - TABLE, No. 4.

- - - on the NORTH AMERICAN AND WEST INDIAN STATION.

Fawn.	Gunnet.	Gunboats.	Jason.	Niobe.	Royal Alfred.	Sphinx.	Steady.	Terror.	Wolverene.	Total.
–	–	1	–	–	–	–	–	1	–	2
–	–	–	1	–	–	–	–	–	4	19
–	–	–	–	–	–	1	–	–	–	1
1	–	–	–	–	–	–	–	–	–	4
–	–	–	–	–	1	–	–	–	–	10
–	–	–	–	–	–	–	–	–	–	3
–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	1	–	–	–	–	1
–	–	–	–	1	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	1	–	–	1
–	–	–	1	–	–	–	–	–	1	6
1	2	–	1	–	1	–	–	–	4	12
–	–	1	–	–	–	–	–	–	–	1
2	2	2	3	1	3	1	1	1	9	65

TABLE, No. 5. - - - - - - - - -

SHOWING the Names of the SHIPS; the Average Complements, &c.; the Number of Cases; Daily, in each Ship; and the

C. Commissioned. P. O. Paid off.

Rate, &c.	NAMES OF SHIPS.	Where Commissioned.	When Commissioned.	Number of Guns.	Tonnage.	Horse Power.
Ironclad - -	Favorite - - - -	Sheerness -	8 Feb. 1866	10	2,094	S. 400
	Royal Alfred - - C.	Portsmouth	15 Jan. 1867	18	4,068	S. 800
Second Rate -	Duncan - - P. O.	Portsmouth	7 Jan. 1864	81	3,727	S. 800
Fourth Rate -	Aurora - - P. O.	Devonport -	18 Nov. 1863	35	2,558	S. 400
	Constance - - -	Devonport -	13 June 1865	35	3,213	S. 500
	Doris - - - -	Devonport -	5 Feb. 1866	24	2,483	S. 800
	Phœbe - - - C.	Devonport -	6 May 1867	30	2,896	S. 500
Sixth Rate - -	Cadmus - - - -	Chatham -	15 Dec. 1864	21	1,466	S. 400
	Jason - - - -	Devonport -	7 May 1866	17	1,711	S. 400
	Niger - - - -	Woolwich -	3 Feb. 1865	13	1,072	S. 350
	Wolverene - - -	Woolwich -	8 May 1864	21	1,703	S. 400
Sloop - -	Barracouta - - -	Sheerness -	18 Mar. 1866	6	1,053	P. 300
	Cordelia - - -	Devonport -	23 June 1864	11	579	S. 150
	Fawn - - - -	Sheerness -	20 June 1864	17	751	S. 100
	Gannet - - - -	Devonport -	3 July 1865	3	579	S. 150
	Niobe - - - S. C.	Woolwich -	11 Feb. 1867	4	1,083	S. 300
	Royalist - - - P. O.	Devonport -	5 Nov. 1863	11	669	S. 150
	Sphinx - - - -	Devonport -	2 May 1865	6	1,061	P. 500
Gun Vessel - -	Cygnet - - - P. O.	Halifax -	19 Oct. 1864	5	428	S. 80
	Nimble - - - -	Halifax -	1 Jan. 1865	5	428	S. 80
	Steady - - - D.	Halifax -	26 Oct. 1864	5	431	S. 80
Gunboat - -	Britomart - - -	Devonport -	23 April 1866	2	270	S. 60
	Rescue - - C. & P. O.	- -	1 April 1867	–	–	–
Receiving Ship -	Aboukir - - - -	Jamaica -	1 April 1867	86	3,091	S. 400
Floating Battery and Dockyard -	Terror - - - -	Bermuda -	1 Jan. 1865	16	1,971	S. 200

- - - - - - - - - TABLE, No. 5.

the Total Number of Days' Sickness on Board; the Average Number of Men Sick Number Discharged to Hospital.

C. S. Station changed. D. Returns defective.

Period.	Average Complements.	Average Complements corrected for Time.	Number of Cases of Disease and Injury.	Number of Days' Sickness on Board.	Average Number of Men Sick Daily for Twelve Months.	Ratio per 1,000 of Average Force of each Ship.	Number Discharged to Hospital.
Year - -	270	270	440	5,196	14·2	52·5	19
1 July to 31 Dec.	650	325	386	5,311	14·5	44·6	4
1 Jan. to 14 June	950	435	281	3,733	10·2	23·4	10
1 Jan. to 20 Dec.	440	430	720	7,502	20·5	47·6	14
Year - -	520	520	695	9,426	25·8	49·6	65
Year - -	480	480	706	8,369	22·9	47·7	44
1 Oct. to 31 Dec.	505	125	109	1,392	3·8	30·4	10
Year - -	275	275	306	4,128	11·3	41·	17
Year - -	265	265	505	4,103	11·2	42·2	28
Year - -	175	175	361	5,223	14·3	81·7	4
Year - -	275	275	569	5,399	14·7	53·4	6
Year - -	175	175	214	2,810	7·6	43·4	12
Year - -	130	130	182	1,285	3·5	26·9	7
Year - -	180	180	197	2,154	5·9	32·7	7
Year - -	125	125	144	1,390	3·8	30·4	11
1 July to 31 Dec.	125	60	186	1,036	2·8	46·6	6
1 Jan. to 12 Apr.	140	40	39	310	·8	20·	–
Year - -	170	170	383	5,056	13·8	81·1	15
1 Jan. to 13 Aug.	70	45	57	751	2·	44·4	15
Year - -	70	70	195	2,208	6·	85·7	16
Year - -	65	35	32	371	1·	28·5	–
Year - -	40	40	38	517	1·4	35·	–
1 April to 30 Oct.	50	30	30	364	·9	30·	–
Year - -	200	200	522	5,391	14·7	73·5	115
Year - - -	190	190	134	836	2·2	11·5	31

TABLE, No. 6. - - - - - - - -

SHOWING the Number of CASES of all DISEASES and INJURIES in each - - - -

DISEASE OR INJURY.	Aboukir.	Aurora.	Barracouta.	Britomart.	Cadmus.	Constance.	Cordelia.	Cygnet.	Doris.	Duncan.
Continued and Remittent Fever	188	3	16	1	22	27	7	19	105	1
Intermittent Fever	6	8	4	1	-	4	3	2	11	2
Yellow Fever	4	-	2	-	13	4	-	-	3	-
Scarlatina	-	1	-	-	1	-	-	-	-	-
Disease of the Brain	-	-	-	-	-	-	-	-	-	-
Apoplexy	-	-	-	-	-	-	-	-	-	-
Insanity	1	-	-	-	-	-	-	-	-	-
Epilepsy	1	1	1	-	2	-	-	-	1	-
Paralysis	-	-	-	1	-	-	-	-	-	-
Delirium Tremens	2	-	-	-	-	-	-	-	2	10
Insolation	-	-	-	-	-	1	-	-	-	-
Neuralgia	1	2	-	2	-	2	-	-	-	-
Vertigo	-	-	1	-	-	-	-	-	-	-
Inflammation of the Lungs and Pleura	9	16	-	6	2	14	-	1	2	2
Phthisis and Hæmoptysis	1	3	2	1	-	8	2	-	1	-
Influenza and Catarrh	15	116	6	1	49	31	32	3	67	90
Cynanche	8	28	3	2	18	23	9	3	16	-
Asthma	-	-	-	2	-	-	-	-	-	-
Disease of the Heart, Functional and Organic	15	3	7	1	-	7	-	-	-	2
Aneurism	-	-	-	-	-	1	-	-	-	-
Hæmorrhoids	1	5	-	-	3	-	3	-	3	1
Varix	2	-	-	-	2	2	-	-	-	-
Inflammation of the Stomach and Bowels	-	1	-	-	-	-	*c* 1	-	-	-
Dysentery	-	2	2	-	-	-	-	2	-	-
Diarrhœa	16	60	6	-	10	9	23	-	42	1
Constipation and Colic	6	8	2	-	6	13	-	-	2	1
Inflammation of the Liver	1	3	-	-	-	-	1	-	-	3
Jaundice	2	-	-	-	1	-	-	-	-	-
Inflammation of the Bladder and Kidneys	-	6	-	-	-	2	1	3	-	4
Syphilis, Primary	18	20	8	-	5	58	5	-	8	3
Syphilis, Secondary	-	2	-	-	-	18	-	1	3	-
Gonorrhœa	13	7	7	-	4	3	-	-	4	1
Orchitis	-	16	5	-	6	13	1	-	6	9
Stricture of the Urethra	4	1	-	-	1	6	-	-	3	-
Incontinence of Urine, &c.	-	-	-	-	-	-	-	-	-	-
Rheumatism	26	53	5	2	18	20	18	5	38	29
Gout	-	1	-	-	-	3	-	-	-	-
Disease of the Bones and Joints	1	1	-	1	1	5	-	2	-	-
Inflammation of the Eyes	4	11	2	1	-	1	2	-	5	2
Amaurosis and Cataract	-	-	-	-	-	-	-	-	-	-
Otitis and Deafness	5	4	1	-	-	6	-	-	1	-
Erysipelas	-	*a* 3	-	-	-	*d* 3	-	-	*a* 3	-
Scrofula	-	-	-	-	1	4	-	-	-	2
Bubo (*Symp.*)	6	10	-	-	1	13	3	1	12	2
Phlegmon and Abscess	57	83	*f* 41	3	38	144	36	1	114	38
Ulcer	18	33	31	1	29	40	-	1	65	5
Psora	-	13	-	-	3	-	-	-	-	-
Eruptions, &c.	2	4	2	-	3	2	-	-	4	1
Dyspepsia and Debility	20	5	16	-	21	29	3	2	66	-
Pyæmia	-	-	-	-	-	-	-	-	-	-
Headache, &c.	1	19	-	-	2	1	-	-	4	-
Dropsy	-	*b* 2	-	-	-	-	-	-	-	-
Worms	-	-	-	-	-	-	-	-	-	-
Wounds and Injuries	66	156	39	11	43	174	30	9	114	58
Burns and Scalds	1	4	3	1	1	4	2	1	1	14
Hernia	1	6	2	-	-	-	-	1	-	-
TOTAL	522	720	214	38	306	695	182	57	706	281

a 2 Erythema. *b* Œdema. *c* Prolapsus Ani. *d* Erythema.

TABLE, No. 6.

Ship employed on the NORTH AMERICAN and WEST INDIAN STATION.

Favorite.	Fawn.	Gannet.	Jason.	Niger	Nimble.	Niobe.	Phœbe.	Rescue.	Royalist.	Royal Alfred.	Sphinx.	Steady.	Terror.	Wolverene.	TOTAL.
9	1	4	124	28	118	–	16	4	–	3	71	6	22	–	795
2	–	1	2	9	13	–	–	–	1	1	1	–	–	1	72
–	–	–	10	1	–	–	–	–	–	–	–	–	–	17	54
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1
–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1
–	–	–	1	–	1	–	–	–	–	–	3	–	–	–	6
–	2	1	–	1	–	1	1	–	–	1	3	–	–	2	18
–	–	1	–	1	–	–	–	–	–	1	–	–	–	–	4
–	2	–	–	–	–	1	–	1	–	–	–	1	–	4	22
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
3	–	–	1	–	–	–	–	–	1	–	1	–	1	–	14
6	–	–	–	8	–	–	–	–	–	–	–	–	–	–	15
6	3	1	9	2	–	2	3	–	–	6	1	1	1	2	89
5	1	1	8	–	1	1	–	–	–	3	–	–	–	–	38
57	47	25	25	31	2	26	8	–	14	51	32	5	19	38	790
4	6	7	5	1	–	–	1	2	1	15	10	–	2	20	184
2	–	–	–	–	–	–	2	–	–	–	–	–	–	–	6
4	–	1	4	1	2	–	1	–	–	2	1	–	1	5	57
–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	2	3	–	1	–	22
2	–	–	–	–	–	2	–	–	–	–	–	–	–	–	10
e 1	–	–	–	–	–	–	–	–	–	e 1	–	–	–	–	4
–	–	–	–	–	3	–	1	–	–	–	–	–	5	–	15
20	1	6	35	36	1	42	1	–	1	29	33	2	9	67	450
7	2	4	1	1	1	–	5	–	–	1	3	–	–	9	72
–	–	–	3	–	1	–	–	–	–	–	1	–	–	–	13
–	–	–	–	1	–	–	–	–	–	1	–	–	–	–	5
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	13
12	4	4	7	–	–	2	4	1	–	5	16	–	3	5	191
–	4	3	12	2	–	–	3	–	–	17	6	–	1	5	76
15	9	–	3	2	5	9	–	4	1	–	5	1	–	8	102
4	7	–	1	4	–	2	4	1	1	8	4	1	1	3	97
–	–	–	–	2	–	–	–	2	–	1	–	–	3	2	25
1	–	–	–	–	–	–	–	–	–	–	–	–	–	1	2
46	6	–	13	14	5	11	2	3	–	8	24	4	5	49	410
–	–	–	–	–	–	–	1	–	–	–	–	–	–	2	7
–	–	–	2	1	–	–	–	–	–	3	2	–	1	3	23
1	–	2	2	5	1	–	2	–	–	5	2	–	–	3	51
–	–	–	h 3	–	–	–	–	–	–	2	–	–	1	–	6
1	–	–	–	1	–	2	3	–	–	1	–	–	–	–	25
–	–	–	–	–	1	–	d 2	1	–	3	–	–	–	a 4	20
4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	11
2	1	–	6	2	3	1	–	–	2	4	7	3	3	3	85
119	f 36	36	111	107	14	29	20	5	6	97	70	5	12	137	1,359
14	16	1	21	10	1	3	5	1	–	14	19	–	–	28	356
–	–	–	–	1	–	1	–	–	–	–	–	–	–	3	21
6	5	5	3	2	–	1	–	1	–	6	–	1	–	2	50
13	4	6	27	–	8	10	5	–	–	7	14	–	8	28	292
–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
20	–	–	–	–	–	–	–	–	1	4	–	–	–	5	57
–	–	b 1	–	–	–	1	–	–	–	–	–	–	–	–	4
–	–	–	g 1	–	–	–	–	–	–	g 1	1	–	–	–	3
50	39	27	62	80	14	37	18	3	9	79	42	2	33	109	1,304
3	1	1	2	7	–	1	1	1	1	2	5	–	1	4	62
1	–	–	–	–	–	–	–	–	–	2	2	–	–	–	15
440	197	144	505	361	195	186	109	39	30	386	383	32	134	569	7,431

e Hæmatemesis. l Fistula in Ano. g Tænia. h Nyctalopia.

SOUTH EAST COAST OF AMERICA.

South East Coast of America Station.

The squadron on the South East Coast of America in 1867 comprised ten vessels, viz., one, of the fourth-rate; one sloop; two steam vessels; four gun-boats; one surveying vessel; and one receiving ship permanently stationed at Rio de Janeiro. There was also a detachment of Marines at the Falkland Islands. Seven of the vessels and the Marine detachment were on the station during the whole twelve months, and the returns from the remaining vessels vary from six to nine months. The mean force corrected for time was 1,130, andthe total number of cases of disease and injury entered on the sick-list during the twelve months 1,550, which is in the ratio of 1371·6 per thousand of mean force, being a decrease, compared with the preceding year, equal to 150·9 per 1,000. Of these, thirty-two were invalided, and sixteen died, the former being in the ratio of 28·3 per 1,000, and the latter of 14·1. The invaliding rate is lower than that of the preceding year, but there is an increase in the ratio of mortality equal to 5·8 per 1,000.

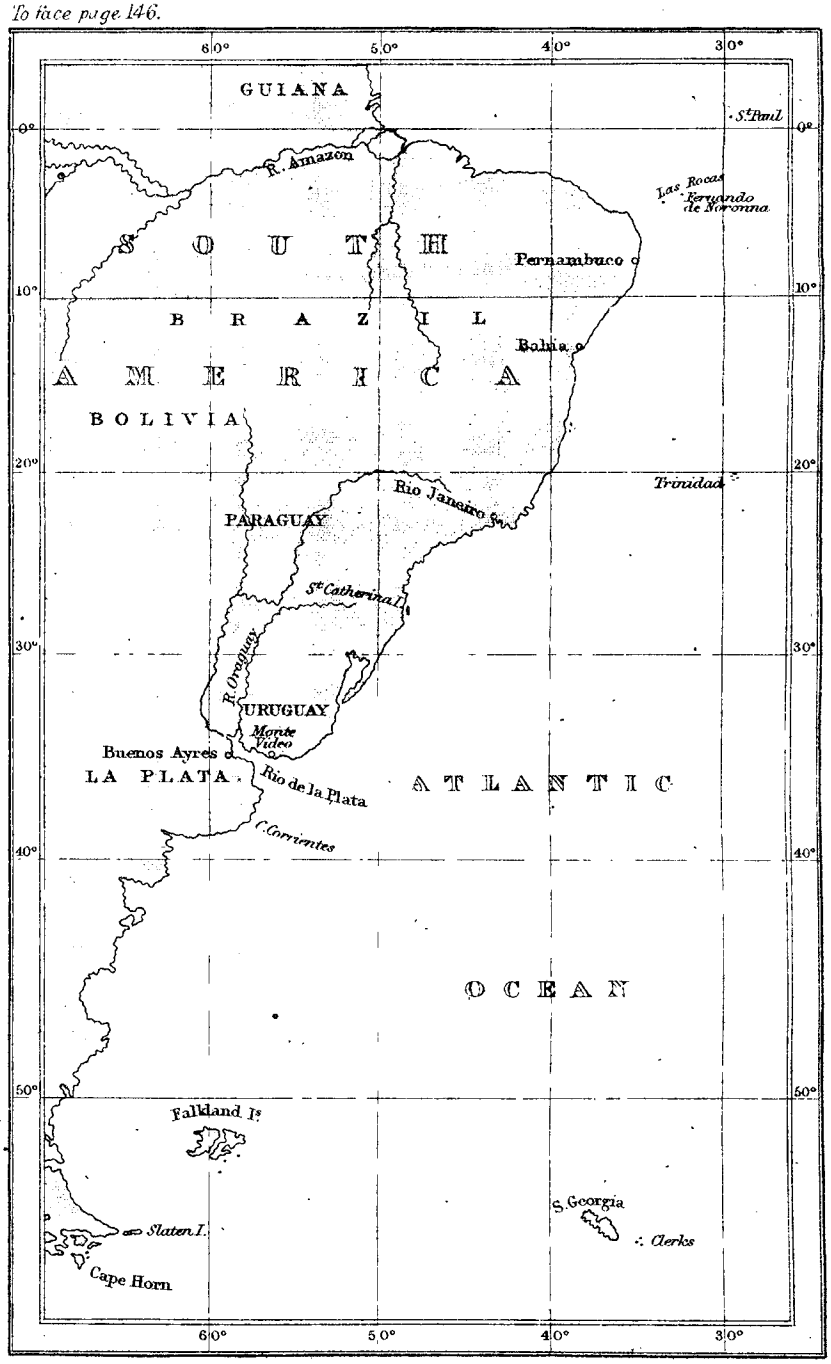
The daily loss of service from fevers was in the ratio of 2·4 per 1,000 of mean force; from diseases of the brain and nervous system, ·5; of the organs of respiration, 5·7; of the heart and bloodvessels, ·6; of the alimentary canal, 2·4; of the liver, ·1; of the genito-urinary organs, 7·7, almost altogether attributable to venereal disease; from rheumatism, 2·1; disease of the special senses, ·4; of the skin and cellular tissue 12·2; from dyspepsia and debility, 1·5; and from wounds and injuries of various kinds, 11·9. The average number of men sick daily, was 58·5, which is in the ratio of 51·7 per 1,000 of mean force, being a trifling increase as compared with the preceding year.

Fevers.—Forty-six cases of fever of a continued or remittent type, and one of ague, were under treatment during the year. There were no cases of ordinary eruptive fevers. Each case of primary fever was on an average between twenty-two and twenty-three days under treatment. The case of ague was only three days on the sick-list.

Continued

SOUTH EAST COAST OF AMERICA STATION

To face page 146.



South East Coast of America Station.

Continued and Remittent Fevers.—Considerably more than one half of all the cases of primary fever occurred on board the Egmont. Twenty-nine cases altogether were entered on her sick-list, of which seventeen are classed as continued, and twelve as febricula. Each case of continued fever was on an average between thirty-four and thirty-five days under treatment, and each case of febricula about five days. One case of the continued type proved fatal. Unfortunately, very little information of any value is given about these cases, but several of them were of the enteric type apparently. The fatal case occurred in the person of a Marine who had been more or less ailing for a week or ten days before he applied for admission to the sick-list; he had lost his appetite, and his strength was gradually failing him; when he presented himself he was pale, his eyes were dull, and his countenance heavy and stupid looking; he was placed on the sick-list on the 11th of April. On the 16th purging set in, and continued to be of some severity until the 22nd. On the 21st there were some rose-coloured spots over the chest and abdomen. At this time the belly was tympanitic, but there was no complaint of pain on pressure over the abdomen. On the 24th there was a recurrence of the diarrhœa, and slight wandering delirium. On the 27th he complained of pain over the base of the right lung, and cough. On the 30th the pulse was 136, and very weak, and he was perspiring profusely, and on the 1st of May he expired. On post-mortem examination of the body, strong adhesions were found over the upper part of the right lung, and effusion at the base; the left lung was healthy; the heart was large with a great quantity of fat over the anterior and upper surface; the liver was slightly enlarged and pale; the stomach was congested at its pyloric extremity, and the glands of the small intestine were enlarged and ulcerated.

No allusion is made as to the source from whence the fever poison was derived in this case, but the following remarks of the surgeon* of the vessel indicate a possible cause for these fevers:

"The harbour still continues very dirty, especially along the quays, where the currents meet, and in the upper part of the harbour above Cobras Island, where the merchant shipping lies. In these localities, there is (I am told by civil practitioners) always more or less fever of the bilious remittent type. All the offal, filth, and dirt from

* Surgeon J. C. Ingles.

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from the markets and shipping is thrown into the harbour, and by degrees collects in a mass. About two cables' length inside the Egmont two currents meet, and generally for from two to four hours in each tide, there is a long line of nearly a mile of filth floating on the surface, varying considerably in breadth, and consisting of decaying vegetable matters, dead fish, entrails and rotten skins of animals, bodies of cats, dogs, pigs, sheep, mules, &c., and on one or two occasions since I have been here, human bodies, from all of which arises a horrible stench. On returning from and going to the shore I have occasionally been obliged to pull through this line of filth, and the stench has almost caused vomiting. The Egmont is at present moored well clear of this nuisance, though I hear there is some idea of moving her further in shore towards the city, in order to take her out of the influence of the swell that sometimes rolls into the harbour. Should this be carried out I think the health of the ship would be greatly affected."

There was only one case of primary fever in the Narcissus. It was of the enteric type, however, and proved fatal on the eighth day. It occurred at Monte Video, in the person of a strong able-bodied seaman, who had not been on shore for two months. When admitted to the sick-list he complained of general malaise, followed by headache and diarrhœa; there was but little abdominal pain on pressure; great prostration of the nervous system supervened; the tongue became dry and brown, sordes collected on the teeth and lips, and before death delirium set in. He passed a considerable quantity of blood from the bowels on the day before his death. The following report of the post-mortem examination of the body is taken from the journal of the staff surgeon* of the ship.

"A strongly formed muscular man. No maculæ or other marks visible on the body. *Head:* Not examined. *Thorax*: Left lung healthy and collapsed; right lung adhering to the pleura, and depending parts much engorged. *Heart* and *Pericardium*: Normal; slight effusion into the latter. *Abdomen*: Intestines throughout distended with fœtid gas; no effusion into the cavity of the peritonæum; great congestion of the mesentery and omentum, and mesenteric glands enlarged; increased vascularity of the peritonæum, particularly over the lower portion of the ileum, which was of a dark purple colour; the mucous membrane of the small intestines was congested throughout, but the lower portion of the ileum was a dark red colour, and easily detached from the muscular coat. Peyer's patches were very much ulcerated. There were small patches of turgescence on the mucous membrane of the sigmoid flexure of the colon and ileo-cæcal valve. *Liver:* Healthy, but gall-bladder very much distended

* Staff Surgeon John Elliott.

distended with bile. *Spleen:* Enlarged, soft, and friable. *Kidneys:* congested, but healthy. *Bladder:* Empty."

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There were five cases of primary fever in the Nassau, four of which are classed as continued, and one as febricula. The total loss of service from the continued cases was 228 days, which gives an average duration of fifty-seven days to each case. In one instance the disease had a fatal termination. The fever was of the enteric type, and was contracted at Rio de Janeiro in the months of September and October. The medical officer* of the ship says—

"Three cases of continued fever of a low typhoid type were put on the sick-list between the 10th and 14th of September. In each the disease commenced with diarrhœa and diffused tenderness of the abdomen, followed by headache, general fever, and great debility. Two of these cases were very severe, with delirium, and great prostration of the vital powers. The convalescence was protracted, giving an average of fifty-seven days' duration to each case. The patients were young, healthy men; no cause could be assigned for the disease, the ship's bilges, &c. being clean. I am inclined to attribute it to exposure to miasmata in the harbour. I was told by the surgeon of the Egmont that he had seen several very severe cases, occurring in ships anchored near the same spot. On the 5th of October another case, in most respects resembling the preceding one, was put on the list, and proved fatal after a lingering illness of forty-two days. The remedies which seemed most beneficial in these cases were quinine and port wine."

In the Sharpshooter there were eight cases of primary fever, all with one exception of an ephemeral type. In the exceptional case the fever was said to have been of the remittent type, but it appears from its history to have been enteric. It occurred in the person of a seaman who was placed on the sick-list on the 18th of November, complaining of headache, lumbar pains, nausea and vomiting. The skin was hot, the eyes rather intolerant of light, and the pulse was 96. The bowels were loose; he appeared to be improving when he was discharged to the Egmont on the 22nd of the same month, the Sharpshooter being about to be placed in the dock. On the 25th there was an aggravation of all his symptoms; the liver appeared to be congested, and vomiting and diarrhœa set in. The stools were numerous and some of them of the characterstic ochreous colour. The specific eruption of enteric fever was not observed, but he had an eruption of sudamina over the body, and

* Assistant Surgeon S. Campbell, M.D.

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and several small pustules appeared on his chest and abdomen. Subsequently convalescence was much retarded by the appearance of several successive crops of boils, and he remained on the sick-list at the end of the year, gaining strength slowly, although the pulse still continued accelerated.

The Spiteful left the station in October for the East Indies. During the first nine months of the year she had only two cases of primary fever on her sick-list, and of these one is classed as continued with a duration of twenty-one days; the other, a case of febricula, being only five days under treatment. No information was given as to what was the precise nature of the continued case.

There was only one case of fever in the Triton, and it was of an ephemeral character.

Diseases of the Brain and Nervous System.—A fatal case of inflammation of the brain occurred in the person of a bandsman of the Narcissus, a small delicate looking man, who was placed on the 21st of January complaining of catarrh with sore throat. His case did not attract much attention, and there was but little change in his symptoms until the 24th, when he stated that he had some pain his head, and that he had been suffering more or less from it for a few days. He had a peculiar wandering manner which was then noticed for the first time, but it had been remarked by his messmates for four or five days; they stated that he had been subject to violent fits of passion, and he had been heard to refer to the injury of the head he sustained when young. Over the upper and posterior portion of the left parietal bone there was the cicatrix of a wound; the tongue was dry and coated, the skin cool, the pulse quiet. On the evening of the same day he became delirious, but answered all questions rationally when roused. He passed a restless night, being very delirious. There was no intolerance of light or sound, however; he continued much in the same condition for several days, the bowels being occasionally evacuated involuntarily in bed. On the evening of the 28th there were muscular twitchings of the extremities, and on the 30th there was constant movement of all the limbs. On the 1st of February he was much purged, and very delirious. On the 3rd he was worse, moaning and muttering all night, and refusing to take food or medicine. The pulse was 115, weak; he was conscious when roused, and would put out his tongue when requested

quested to do so; it was furred and dry; the muscular twitchings were most frequent in the arms. On the 15th he had one or two convulsions, after which he gradually sank. The following report of the post-mortem examination of the body, and remarks upon the case, are by the surgeon* of the ship, from whose detailed report the foregoing history has been abridged. South East Coast of America Station.

"The body was considerably emaciated, and the cutaneous vessels congested. The arachnoid contained more serum than usual, and that portion covering the upper surface of both hemispheres, and the corresponding surface attached to the dura mater, was found considerably thickened, most marked at the upper edge of the left hemisphere, at which spot was seen, within its cavity, an albuminoid granular exudation of considerable firmness. In the sub-arachnoid space beneath the thickened membrane there was considerable effusion of thick yellow serum, filling the convolutions of the immediate neighbourhood. The cerebro-spinal fluid was abundant, and the pia mater congested. The brain matter, at the upper part of both hemispheres, was softened and friable; the puncta vasculosa were numerous, and dark coloured. The central and lower parts of the brain showed no signs of disease. No serum was found in the lateral ventricles.

". . . . . The diagnosis, as regarded the relative amount of implication of the cerebrum and the membranes, was somewhat difficult, and was rendered more so by the previous history of the man not being known. All the mental faculties were implicated from the first, but that of perception the least. The patient never complained of much pain in the head, and did not appear to suffer in that respect. There was but little febrile excitement, and, when present, it appeared very irregularly. The constant restless movement and twitching of the limbs indicated some complication of the membranes. There was no vomiting nor paralysis, and convulsions did not appear till the day of death. The albuminoid granular effusion, which was found at one spot, I considered at first to be amyloid deposit; but it gave no reaction with the iodine test."

A fatal case of inflammation of the brain occurred in the person of a seaman of the Nassau, who was placed on the sick-list on the 6th of July, complaining of severe pain in the left ear, and slight headache. There was a purulent discharge from the ear. A small soft polypus which filled up the meatus was removed with the forceps. On the evening of the 8th he talked for some time incoherently, but soon became sensible again. He was delirious again on the 10th, and made several attempts to get out of bed. His symptoms did

* Surgeon F. W. Blake, M.D.

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did not alter much for several days; but on the 15th he was unable to close the left eye, and vision in that organ was lost. He partially recovered the sight, however, in a day or two afterwards, paralysis of the orbicularis palpebrarum continuing. In this condition he was removed, for the sake of accommodation, to the Egmont, where the symptoms continued unchanged until the morning of the 19th, when he died comatose. The disease in this case was probably dependant upon extension of inflammation, either from the mastoid cells, or from disease of the petrous portion of the temporal bone to the meninges; but, singular to say, although a post-mortem examination of the body was made, the head was not examined.

A marine who had recently joined the Narcissus, apparently in good health, was placed on the sick-list, complaining of sickness, headache, and giddiness, and occasional rigors. He had had headache and giddiness for two or three days a short time previously, and his messmates remarked that he was more dull and drowsy than usual. On the night of his being placed on the sick-list, he got out of his hammock and went on the quarter-deck with nothing but his flannel on, and a blanket wrapped round him. When asked what he wanted, he said he did not know, and looked stupid and idiotic, and was with difficulty induced to return to his hammock. He became very restless and delirous, and on the sixth day after his admission to the sick-list the left arm became paralysed. Paralysis subsequently extended to the left leg, but only to a partial extent. It was complete, as regards motion, in the left arm. He was sent to the Egmont, for convenience of treatment, and from thence subsequently invalided. The surgeon of the Megæra,* to which ship he was transferred for a passage to England, makes the following report of his case:—

"The patient, when brought on board this ship, on the 3rd of September, had lost all control over both hands and feet, and his mind was in a torpid state. He passed urine and fæces involuntarily several times every day in his bed. On the 6th, bed sores began to form over the nates. On the 9th, his appetite failed, and he lost all power of recognition. On the 10th, a bed sore formed on the right cheek, in consequence of his being placed occasionally on his side to relieve the back. The body became covered with petechiæ. The pulse, though regular, was slow, and easily compressible. The

* Surgeon Thomas M'Carthy.

The eyes were bright, and the pupils normal. The breathing was principally abdominal; after the morning visit it gradually became less, and he died on the afternoon of the same day."

No post-mortem examination of the body was made in this case, but the symptoms during life indicated the grave character of the lesions of the brain and nervous system which must have taken place.

There was only one case of delirium tremens in the squadron. It occurred in the person of an officer.

Diseases of the Organs of Respiration.—The ratio of cases coming under this head was about the same as in the preceding year; but the invaliding rate was much higher. The ratio of mortality was just one-half of that of 1866. Three men were invalided for inflammatory diseases of the lungs, and six for pulmonary consumption.

Of fifteen cases of inflammatory disease of the respiratory organs that were under treatment, nine were cases of bronchitis, three of pneumonia, and three of pleuritis. The total number of days' sickness from these cases gave an average duration of about twenty-five days to each.

There were eighty-seven cases of catarrh in the Narcissus, but they were of trifling importance. They are stated to have been of the usual character, caused by exposure to draughts and sudden changes of temperature. The staff surgeon remarks:—

"Although the climate in the River Plate is considered very healthy, the sudden changes of temperature are very great. I have seen the thermometer change, during twenty-four hours, from 59° to 83°, depending on the direction of the wind. The average length of time these cases of catarrh were under treatment was between eight and nine days, unless complicated with some other disease."

Diseases of the Heart and Bloodvessels.—There was a considerable reduction in the ratio of cases coming under this head, compared with the preceding year, and also in the invaliding rate. The ratios of mortality of the two years were precisely the same. Seven cases of functional and organic disease of the heart were under treatment, of which one was invalided, and one terminated fatally. The latter case occurred in the person of one of the carpenter's crew of the Spiteful, a man of dissipated habits, but strong and muscular, and who had never been under treatment for any serious

 ailment

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ailment in the vessel. He presented himself on the morning of the 28th of June, complaining of pain in the præcordial region, and of slight cough. His skin was hot; his pulse 90, weak; and the tongue clean. He had been suffering from pain in his chest and oppression of breathing for some days, but did not consider himself sufficiently ill to report himself. When seen at 7 h. 30. a. m., the usual time for the morning visit, the case appeared to be one of bronchitis; a sinapism was applied to his chest, and he was directed to return at 10 a. m., that he might be carefully examined, as that could not be done at the time. About 10 h. a. m., while at stool, he fainted, and was taken below, where he partially recovered. He was put to bed, but had hardly been placed in his hammock when he became insensible, his face being congested; his breathing gasping, and slightly stertorous; and the heart's action feeble and intermittent. Breathing was excited by dashing cold water on the face and chest, hot water being applied to the extremities, to relieve the pulmonary congestion. He recovered sufficiently to be enabled to swallow, and he complained of great pain in the region of the heart. Stimulants were given him, and the heart's action became more regular, excepting when he was seized with a paroxysm of pain. At such times he screamed loudly, and threw himself about as if in great suffering. After one of these fits, during which he had raised himself to the sitting posture, he fell back insensible, and in a few minutes expired. He died at 11 h. 45. a. m., four hours after first reporting himself sick. The following report of the post-mortem examination of the body, and remarks, are by the surgeon of the vessel; from his detailed report of the case, the foregoing abridged history has been taken:—

"*External Appearance.*— Body muscular, and well nourished. There was slight lividity of the head and neck.

"*Thorax.*—The right lung and front of the pericardium were firmly adherent to the anterior wall of the chest by old adhesions, and a few patches of recently effused lymph. The pericardium contained from eight to ten ounces of serum; the heart was about twice the natural size; its walls thin and pale; the valves healthy. The right lung was smaller than natural, and adherent in many places to the walls of the thorax. The pleural cavity contained about a pint of serum. The left lung was healthy, and much larger than the right.

"*Abdomen.*—The liver was greatly enlarged, and encroached on the right lung and heart; the gall-bladder was distended; the spleen enlarged; the other organs healthy.

"*Head.*—Not examined.

"The

"The immediate cause of death seems to have been the effusion of serum into the pericardium, stopping the heart's action, already greatly impeded by the enlarged liver, old pleuritic adhesions, and the diseased state of the organ itself." South East Coast of America Station.

Diseases of the Alimentary Canal.—There was a reduction in the ratio of cases coming under this head, compared with the preceding year, equal to 88·2 per 1,000 of mean force; but the invaliding and death rates were almost precisely the same.

Cholera being extensively epidemic on the station, great precautions were taken to protect the different ships' companies, as far as possible, from being affected by it; and leave was entirely stopped in those localities in which it was most prevalent.

Cholera, Diarrhœa, and Dysentery.—Although there was a considerable tendency to diarrhœa among the ship's company of the Doterel in the month of December, it was only necessary to place one man on the sick-list for the disease, the others yielding readily to the early administration of astringents.

There were two cases of dysentery and thirty-three of diarrhœa in the Egmont. Both cases of dysentery were of a chronic character and both were invalided. In one the affection was complicated with disease of the liver. Little information is furnished with reference to the cases of diarrhœa, but it appears that in the month of February a good many were treated which were not of sufficient severity to be placed on the sick-list. At that time cholera had made its appearance in Rio Janeiro, but not very extensively. No case of the disease occurred in the Egmont, but in a Russia frigate lying a short way off, a case of what is termed "cholerine" is said to have occurred.

There was a single case of dysentery in the Gleaner. It was eleven days under treatment, but no information with respect to its character or cause is given in connection with it. The medical officer* of this vessel, writing of the outbreak of cholera in the River Plate, remarks:—

"About the end of March a severe epidemic of cholera, of the type termed Asiatic, made its appearance in Buenos Ayres for the first

* Assistant Surgeon H. Scott Lauder.

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first time. It had worked its way down the river from Corrientes, where the Brazilian army was encamped, having been engendered there by over-crowding, want of adequate sanitary arrangements, and bad diet. Among the towns up the River Parana which were visited by this disease, Rosario suffered the most; and notwithstanding stringent quarantine regulations, it soon made its appearance in Monte Video, but in a much milder form than in Buenos Ayres, owing probably to its more elevated and exposed site, and to the more thorough drainage, and stricter attention to the rules of hygiene, than was carried on in the sister city. The outbreak caused an intense panic in Buenos Ayres, all the inhabitants who were, by any possible means, able to leave fleeing into the camp and neighbouring villages.; but they soon fled back again, since, from over-crowding in small huts, and mud ranchos, and perhaps partly owing to the want of prompt medical attendance, the cases became more numerous and more fatal than in the city itself. Although there were many and severe cases among the merchant shipping, fortunately no case, so far as I have heard, occurred on board any of Her Majesty's ships at either of the two River Plate ports. . . . . In Buenos Ayres the disease reached its height on the 20th and 21st of April, on which days over 100 fatal cases a day occurred, in a population of about 250,000. By the end of May the epidemic had entirely ceased, and on the 24th of that month, the port of Monte Video was again open, free of quarantine.

In December, cholera again broke out in Buenos Ayres with increased virulence, carrying off as many as 150 and 170 daily. It very soon appeared at Monte Video, also in an aggravated form, but, as in the former epidemic, not so fatally as in Buenos Ayres."

There were eleven cases of diarrhœa in the Linnet, each case being, on an average, about four days on the sick-list. A considerable number of the ship's company were also under treatment for this disease, without being placed on the sick-list. Sudden variations of temperature, consequent upon the frequent shifting of the wind from north to south-west (a very common occurrence, it is said, in the spring, summer, and autumn months, in the River Plate) were considered the exciting cause of these affections.

With reference to the epidemic of cholera which prevailed in the River Plate during the time the Linnet was stationed there, the medical officer* says :—

"During the month of April a very severe epidemic of cholera prevailed in the city of Buenos Ayres, and in the river side cities and provinces of the Argentine Confederation generally. Its origin was clearly traceable to the military camps in Paraguay, where both

* Assistant Surgeon Alexander M'Donald, M.D.

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both armies suffered very great loss during its visitation. The allies established large cholera hospitals in Corrientes, to the inhabitants of which the plague quickly spread. Between the ports of Corrientes and Buenos Ayres a vast number of steamers were constantly running with provisions and other necessaries for the army. These were not put under any surveillance, but had free communication with the city, and it is an interesting fact that the cholera was established in the ports of Corrientes, San Lorenzo, Rosario, and Buenos Ayres, which are in the direct route of the steamers, and where they were in the habit of calling, before it spread to any of the interior towns of the Republic. In Buenos Ayres the disease affected principally the lower orders of natives and Italians. The crews of many of the vessels in the port, and especially those in the inner roads, suffered very severely. The Linnet was lying in the port of Buenos Ayres when the epidemic broke out, but when it became established proceeded to Colonia, a small port for coasting schooners on the north shore of the River Plate.

"In Monte Video strict quarantine regulations were administered to all vessels coming from infected ports; the city remained tolerably free from cholera."

In the Narcissus there were forty-nine cases of diarrhœa, the majority of which occurred during the Michaelmas and Christmas quarters of the year, when the vessel was at Rio Janeiro. The affection was attributed to dietetic irregularities, and each case was, on an average, about four days under treatment.

Of thirteen cases of diarrhœa which were placed on the sick-list of the Nassau, ten occurred during the Michaelmas quarter of the year, when the vessel arrived at Rio Janeiro from the Straits of Magellan. The disease is attributed to the sudden change from the cold climate of the latter locality, to the hot, damp, and depressing atmosphere of Rio. Some of the cases were of an obstinate character, and were accompanied by symptoms of hepatic derangement. The average duration of each case was a little over eight days.

In the Sharpshooter there were two cases of cholera, and twenty-one of diarrhœa. Both cases of cholera proved fatal, each in about twenty-four hours. They occurred at Rio Janeiro in the month of April, when the vessel was in the dry dock at the Island of Cobras. The ship's company had been very healthy previously, no case having been added to the sick-list for fifteen days. The medical officer* says:—

"On the 9th, the ship was taken into the dry dock at the back of the

* Assistant Surgeon G. W. L. Harrison.

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the island of Cobras. The dock is most unhealthily situated, being an excavation on the lee side of the island, which is of considerable height, and forms perpendicular granite cliffs of 100 feet on the southern, or weather, and western sides of the dock, effectually barring out the sea-breeze. The water in the neighbourhood is full of sewage, and the weeds, &c., removed from the bottoms of docked ships is thrown carelessly on the beach alongside, smelling offensively under the hot sun. A naval hospital on the weather side overlooks the dock. The weather was hot, the thermometer ranging from 80° to 87° between decks in the coolest part of the ship, and the men, to avoid the heat and closeness of the confined lower deck, were in the habit of sleeping under awnings outside the ship, the ground, in places, bearing evidence of having been used by prior occupants for natural purposes.

"After remaining six days, the water in the dock had not been pumped out, in consequence of defective machinery, and it was becoming very offensive alongside. Cholera had prevailed in Rio for some time before the ship's arrival, but was reported to have ceased as an epidemic, a few scattered cases only occurring. A case of cholera occurred on board on the 15th. As soon as the health officers could be communicated with, he was taken ashore to the hospital, where he died next morning. On the 16th, a second case occurred, which was also taken to hospital, where it terminated fatally on the following morning. This man was coxswain of the boat that took the first case to hospital on the previous evening. I was informed by others of the crew that he had been vomited over on the way.

"Eight cases of diarrhœa followed, some of them although unattended with cramps, showing the choleraic influence by the vomiting and great debility present. The ship's company had been under the same conditions with respect to leave and water for drinking as the other ships in port, which were free from cholera or diarrhœa.

"Every precaution that occurred to me to prevent the spread of the disease was used. All clothes, vessels, &c., used, were disinfected with chloride of zinc. One round-house was set apart for diarrhœa patients, and the sentry had orders to report anyone frequently visiting it. The lower deck was lime-washed, and all wooden work scrubbed with chloride of zinc. On the appearance of the second case, I recommended that the ship should be immediately removed from the dock, and anchored in the fresh breeze at the mouth of the port. Before entering the dock, I had recommended, and the recommendation was approved by the commanding officer, that the ship's company should not be allowed to sleep on board, but should remain in the Egmont. The Brazilian authorities, however, reporting the place healthy, and a French vessel having just occupied the dock without contracting sickness, the recommendation was not complied with."

There were no points of any interest in the cases of diarrhœa in the remaining vessels of the squadron. In the Spider there was a slight but constant tendency to this disease

disease during the months of January and February, but in nearly every case it yielded promptly to the timely administration of a dose or two of astringent medicine.

The immunity from cholera enjoyed by the vessels of this squadron, stationed as they were on a coast, and even up rivers, where the disease prevailed epidemically in the most virulent form, is very remarkable, and shows how much is to be gained by adopting the strictest precautionary measures when in its vicinity. In the Spider, "no leave was given, and every precaution was taken against its introduction on board." In the Triton, "every precaution was taken to guard against the introduction of the disease. Fruit was prohibited, as it was impossible to make the men indulge in in it with moderation; great cleanliness was observed; solution of chloride of zinc was used daily at the head, and waterclosets; no night leave was allowed; and the decks were kept as dry as possible." The staff surgeon of the Narcissus says:—

"Every precaution was taken to prevent communication with the shore; all leave was stopped, and no cases of cholera occurred in the squadron."

Generally, in fact, a watchful care was shown to preserve the ships' companies from the risk of infection, and with a success which was eminently gratifying. Excepting in one instance, that of the Doterel, no mention is made in any of the returns as to what water was used for drinking in the different ships. In that vessel, however, while stationed at Itapiru, the nearest Paraguayan territory, where the river was polluted with every variety of decaying animal and vegetable matter, condensed water only was employed.

Diseases of the Genito-Urinary Organs.—There was a reduction in the total ratio of cases coming under this head, compared with the preceding year, equal to 19·7 per 1,000. The reduction in the ratio of cases of syphilis was, however, only to the extent of 1·5 per 1,000. There was, indeed, very little syphilitic disease in the squadron, and of what there was, no notice is taken by the majority of the medical officers. The staff surgeon of the Narcissus, in which vessel nearly one-half of all the cases occurred, says:—

"The ship's company have had leave every month, and sometimes oftener when practicable, both at Rio and Monte Video, so that I do not think the amount of disease contracted to be very great. The average duration of each case was about forty days. The sores

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were mostly superficial and soft, without induration; but almost in every case, either suppuration or chronic enlargement of the inguinal glands took place, which prolonged the period of treatment."

Diseases not Classed.—Under this head occur four cases of worms. Three of these occurred in the Narcissus, the men of which vessel are stated to have been rather subject to tape-worm at Monte Video, where the beef supplied to the ship's company is supposed to have been infected with the parasite. The beef was of rather an inferior quality, the cattle being usually driven from a long distance, and carelessly slaughtered. The oil of male fern was used with marked success in these cases.

Wounds and Injuries.—A man when on shore on leave at Rio Janeiro fell from the cross-trees of a flagstaff, and sustained fatal fracture of the skull.

There were three deaths by drowning. One occurred in the person of a boy, who fell overboard from the fore chains, where he had been fishing; a man was drowned by the stranding of a boat in which he was; and an officer was drowned by the capsizing of a canoe.

The total number of deaths was sixteen, twelve of which were from various forms of disease, and four from injuries and drowning. The total death-rate was 14·1 per 1,000 of mean force, which is an increase, compared with the preceding year, equal to 5·8 per 1,000. This increase is almost altogether attributable to the mortality from diseases of the brain and nervous system.

Invalided. Two persons were invalided for diseases of the the brain and nervous system; nine for diseases of the respiratory organs, of which six were labouring under pulmonary consumption; one for disease of the heart; two for dysentery; one for disease of the liver; four for diseases of the genito-urinary organs; three for rheumatism; one for psoas abscess; one for ulcer; two for dyspepsia and debility; and three for wounds and injuries of various kinds. The total number invalided was thirty-two, being in the ratio of 28·3 per 1,000 of mean force, which is a decrease, compared with the previous year, equal to 7·5 per 1,000.

TABLE, No. 1.

SHOWING the Number of CASES of all DISEASES and INJURIES, and the Number INVALIDED and DEAD, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Continued and Remittent Fever	46	40·7	-	-	3	2·6
Intermittent Fever	1	·8	—	—	—	—
Disease of the Brain	4	3·5	-	-	3	2·6
Apoplexy	2	1·7	-	-	2	1·7
Epilepsy	1	·8	1	·8	—	—
Paralysis	1	·8	1	·8	—	—
Insanity	2	1·7	2	1·7	—	—
Delirium Tremens	1	·8	—	—	—	—
Neuralgia	7	6·1	—	—	—	—
Vertigo	1	·8	1	·8	—	—
Inflammation of the Lungs and Pleura	15	13·2	3	2·6	—	—
Phthisis and Hæmoptysis	6	5·3	6	5·3	1	·8
Influenza and Catarrh	176	155·7	—	—	—	—
Cynanche	41	36·2	—	—	—	—
Disease of the Heart, Functional and Organic	7	6·1	1	·8	1	·8
Hæmorrhoids	6	5·4	—	—	—	—
Varix	1	·8	—	—	—	—
Disease of the Stomach and Bowels	2	1·7	—	—	—	—
Dysentery	4	3·5	2	1·7	—	—
Diarrhœa	159	140·7	—	—	—	—
Cholera	2	1·7	-	-	2	1·7
Constipation and Colic	15	13·2	—	—	—	—
Disease of the Liver	2	1·7	1	·8	—	—
Jaundice	1	·8	—	—	—	—

TABLE, No. 1.—Showing the Number of Cases of all Diseases, &c.—*continued.*

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	1	·8	—	—	—	—
Syphilis, Primary	35	30·9	—	—	—	—
Syphilis, Secondary	28	24·7	2	1·7	—	—
Gonorrhœa	17	15·	—	—	—	—
Orchitis	8	7·	—	—	—	—
Stricture	1	·8	1	·8	—	—
Incontinence of Urine, &c.	1	·8	1	·8	—	—
Rheumatism	64	56·6	3	2·6	—	—
Disease of the Bones and Joints	6	5·3	—	—	—	—
Inflammation of the Eyes	6	5·3	—	—	—	—
Otitis and Deafness	7	6·1	—	—	—	—
Erysipelas	1	·8	—	—	—	—
Bubo (*Symp.*)	14	12·3	—	—	—	—
Phlegmon and Abscess	290	256·6	1	·8	—	—
Ulcer	90	79·6	1	·8	—	—
Psora	2	1·7	—	—	—	—
Eruptions, &c.	5	4·4	—	—	—	—
Dyspepsia and Debility	53	46·9	2	1·7	—	—
Dropsy	1	·8	—	—	—	—
Worms	4	3·5	—	—	—	—
Headache	14	12·3	—	—	—	—
Wounds and Injuries	391	346·	3	2·6	1	·8
Burns and Scalds	8	7·	—	—	—	—
Drowned	-	-	-	-	3	2·6
TOTAL	1,550	1371·6	32	28·3	16	14·1

TABLE, No. 2.

SHOWING the Number of DAYS' SICKNESS from each Disease and from Injuries, the Average Number of Men Sick Daily, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Continued and Remittent Fever	1,032	3	1,035	2·8	2·4
Intermittent Fever	3	-	3	—	—
Disease of the Brain	38	79	117	·3	·2
Apoplexy	9	31	40	·1	—
Epilepsy	3	16	19	—	—
Paralysis	12	20	32	—	—
Insanity	26	151	177	·4	·3
Delirium Tremens	12	-	12	—	—
Neuralgia	60	-	60	·1	—
Vertigo	13	-	13	—	—
Inflammation of the Lungs and Pleura	349	29	378	1·	·8
Phthisis and Hæmoptysis	185	534	719	1·9	1·6
Influenza and Catarrh	1,193	7	1,200	3·2	2·8
Cynanche	253	-	253	·6	·5
Disease of the Heart, Functional and Organic	149	89	238	·6	·5
Hæmorrhoids	93	-	93	·2	·1
Varix	16	51	67	·1	—
Disease of the Stomach and Bowels	23	-	23	—	—
Dysentery	45	10	55	·1	—
Diarrhœa	949	-	949	2·6	2·3
Cholera	2	-	2	—	—
Constipation and Colic	73	-	73	·2	·1
Disease of the Liver	92	-	92	·2	·1
Jaundice	5	-	5	—	—

TABLE, No. 2.—Showing the Number of Days Sickness from each Disease, &c.—*cont^d.*

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	8	3	11	—	—
Syphilis, Primary	1,388	139	1,527	4·1	3·6
Syphilis, Secondary	1,128	204	1,332	3·6	3·1
Gonorrhœa	384	-	384	·9	·7
Orchitis	132	-	132	·3	·2
Stricture	41	46	87	·2	·1
Incontinence of Urine, &c.	44	5	49	·1	—
Rheumatism	685	218	903	2·4	2·1
Disease of the Bones and Joints	63	-	63	·1	—
Inflammation of the Eyes	98	51	149	·4	·3
Otitis and Deafness	54	27	81	·2	·1
Erysipelas	12	-	12	—	—
Bubo (*Symp.*)	223	-	223	·6	·5
Phlegmon and Abscess	3,211	37	3,248	8·8	7·7
Ulcer	1,675	13	1,688	4·6	4·
Psora	20	-	20	—	—
Eruptions, &c.	34	-	34	—	—
Dyspepsia and Debility	535	154	689	1·8	1·5
Dropsy	3	-	3	—	—
Worms	16	-	16	—	—
Headache	66	-	66	·1	—
Wounds and Injuries	4,635	272	4,907	13·4	11·8
Burns and Scalds	83	-	83	·2	·1
Hernia	-	17	17	—	—
TOTAL	19,173	2,206	21,379	58·5	51·7

TABLE, No. 3.

SHOWING the Number of Men INVALIDED from each Ship employed on the SOUTH EAST COAST OF AMERICA STATION.

CAUSE of INVALIDING.	Doterel.	Egmont.	Gleaner.	Narcissus.	Nassau.	Sharpshooter.	Spider.	Spiteful.	Triton.	TOTAL.
Insanity	–	1	–	–	–	–	–	1	–	2
Epilepsy	–	–	–	1	–	–	–	–	–	1
Paralysis	–	–	–	1	–	–	–	–	–	1
Vertigo	–	–	–	–	–	–	–	1	–	1
Inflammation of the Lungs and Pleura	–	–	1	1	–	–	1	–	–	3
Phthisis and Hæmoptysis	–	–	–	3	2	–	–	1	–	6
Disease of the Heart, Functional and Organic	–	–	–	1	–	–	–	–	–	1
Dysentery	–	2	–	–	–	–	–	–	–	2
Disease of the Liver	–	–	–	–	–	1	–	–	–	1
Syphilis, Secondary	–	–	–	1	–	–	–	–	1	2
Stricture	–	–	–	–	–	–	–	–	1	1
Incontinence of Urine, &c.	–	–	–	1	–	–	–	–	–	1
Rheumatism	1	1	–	1	–	–	–	–	–	3
Abscess (Psoas)	–	–	–	1	–	–	–	–	–	1
Ulcer	–	–	–	1	–	–	–	–	–	1
Dyspepsia and Debility	–	–	–	–	–	–	–	2	–	2
Wounds	–	–	–	1	2	–	–	–	–	3
TOTAL	1	4	1	13	4	1	1	5	2	32

TABLE, No. 4.

SHOWING the Number of DEATHS in each Ship employed on the SOUTH EAST COAST OF AMERICA STATION.

CAUSE OF DEATH.	Doterel.	Egmont.	Marines.	Narcissus.	Nassau.	Sharpshooter.	Spiteful.	TOTAL.
Continued and Remittent Fever -	–	1	–	1	1	–	–	3
Inflammation of the Brain - -	–	–	–	2	1	–	–	3
Apoplexy - - - - - -	1	–	1	–	–	–	–	2
Phthisis - - - - - -	–	–	–	1	–	–	–	1
Disease of the Heart - - -	–	–	–	–	–	–	1	1
Cholera - - - - - -	–	–	–	–	–	2	–	2
Wounds and Injuries - - -	–	–	–	1	–	–	–	1
Drowned - - - - - -	–	–	–	2	–	1	–	3
TOTAL - - -	1	1	1	7	2	3	1	16

TABLE, No. 5.

SHOWING the Names of the SHIPS; the Average Complements, &c.; the Number of Cases; the Total Number of Days' Sickness on Board; the Average Number of Men Sick Daily, in each Ship; and the Number discharged to Hospital.

S. C. Station Changed. P. O. Paid off. D. Returns Defective.

Rate, &c.	NAMES of SHIPS.	Where Commissioned.	When Commissioned.	Number of Guns.	Tonnage.	Horse Power.	Period.	Average Complements.	Average Complements corrected for Time.	Number of Cases of Disease and Injury.	Number of Days' Sickness on Board.	Average Number of Men Sick Daily for Twelve Months.	Ratio per 1,000 of Average Force of each Ship.	Number Discharged to Hospital.
Fourth Rate -	Narcissus - -	Devonport -	4 April 1865	35	2,665	S. 400	Year - -	525	525	·687	10,141	27·7	52·7	5
Sloop - -	Spiteful - S. C.	Woolwich -	2 Nov. 1865	6	1,054	P. 280	1 Jan. to 30 Sept.	165	125	208	1,857	5·	40·	3
Steam Vessel -	Sharpshooter -	Portsmouth	29 Sept. 1864	6	503	S. 160	Year - -	80	80	129	1,339	3·6	45·	5
	Triton P. O & D.	Devonport -	23 Jan. 1863	3	654	P. 260	1 Jan. to 25 July	90	50	54	490	1·3	26·	2
Gunboat - -	Doterel - D.	Monte Video	1 July 1865 -	2	270	S. 60	1 July to 31 Dec.	40	20	22	169	·4	20·	2
	Gleaner - -	Devonport -	20 April 1865	2	217	S. 60	Year - -	40	40	19	219	·6	15·	—
	Linnet - - -	Sheerness -	8 Aug. 1865	2	268	S. 60	Year - -	40	40	45	258	·7	17·5	2
	Spider - - D.	Monte Video	21 June 1865	2	236	S. 60	Year - -	40	30	20	164	·4	13·3	3
Surveying Vessel	Nassau - -	Woolwich -	27 July 1866	5	695	S. 150	Year - -	90	90	120	1,796	4·9	54·4	2
Receiving Ship -	Egmont - -	Portsmouth	23 Dec. 1862	4	1,780	S. 200	Year - -	110	110	238	2,653	7·2	65·4	—
Marine Detachment, Falkland Islands	- -	- - -		—	—	—	Year - -	20	20	8	87	·2	10·	—

Table, No. 6.

Showing the Number of Cases of all Diseases and Injuries in each Ship employed on the South East Coast of America Station.

DISEASE OR INJURY.	Doterel.	Egmont.	Gleaner.	Linnet.	Marines.	Narcissus.	Nassau.	Sharpshooter.	Spider.	Spiteful.	Triton.	Total.
Continued and Remittent Fever	–	29	–	–	–	1	5	8	–	2	1	46
Intermittent Fever	–	–	–	–	–	1	–	–	–	–	–	1
Disease of the Brain	–	–	–	–	–	2	–	1	–	1	–	4
Apoplexy	1	–	–	–	1	–	–	–	–	–	–	2
Epilepsy	–	–	–	–	–	1	–	–	–	–	–	1
Paralysis	–	–	–	–	–	1	–	–	–	–	–	1
Insanity	–	1	–	–	–	–	–	–	–	1	–	2
Delirium Tremens	–	–	–	–	–	–	–	1	–	–	–	1
Neuralgia	–	1	–	–	–	4	–	–	–	1	1	7
Vertigo	–	1	–	–	–	–	–	–	–	–	–	1
Inflammation of the Lungs and Pleura	1	2	1	1	–	4	2	1	1	1	1	15
Phthisis and Hæmoptysis	–	–	–	–	–	3	2	–	–	1	–	6
Influenza and Catarrh	5	23	1	–	–	87	22	17	1	15	5	176
Cynanche	1	6	–	3	–	19	3	2	1	6	–	41
Disease of the Heart, Functional and Organic	–	1	–	–	–	2	–	2	–	2	–	7
Hæmorrhoids	1	1	–	–	–	2	–	1	–	1	–	6
Varix	–	–	–	–	–	1	–	–	–	–	–	1
Inflammation of the Stomach and Bowels	–	–	–	1	–	–	–	1	–	–	–	2
Cholera	–	–	–	–	–	–	–	2	–	–	–	2
Dysentery	–	2	1	–	–	–	–	–	1	–	–	4
Diarrhœa	1	33	–	11	–	49	13	21	3	14	14	159
Constipation and Colic	1	3	–	–	–	3	2	3	1	2	–	15
Inflammation of the Liver	–	1	–	–	–	–	–	1	–	–	–	2
Jaundice	–	–	–	–	–	1	–	–	–	–	–	1
Inflammation of the Bladder and Kidneys	–	–	–	–	–	–	–	–	–	1	–	1
Syphilis, Primary	2	11	1	3	–	14	2	–	–	1	1	35
Syphilis, Secondary	–	1	–	–	–	23	–	3	–	–	1	28
Gonorrhœa	–	2	–	1	–	6	–	1	–	5	2	17
Orchitis	–	1	–	–	–	3	–	2	–	2	–	8
Stricture of the Urethra	–	–	–	–	–	–	–	–	–	–	1	1
Incontinence of Urine, &c.	–	–	–	–	–	1	–	–	–	–	–	1
Rheumatism	2	13	–	4	–	12	8	4	3	17	1	64
Disease of the Bones and Joints	–	–	–	–	–	3	–	–	1	2	–	6
Inflammation of the Eyes	–	1	–	–	–	2	3	–	–	–	–	6
Otitis and Deafness	–	3	–	–	–	–	1	–	–	3	–	7
Erysipelas	–	–	–	–	–	1	–	–	–	–	–	1
Bubo (*Symp.*)	–	1	1	–	–	4	–	1	1	6	–	14
Phlegmon and Abscess	2	25	5	6	1	*a*172	24	13	2	35	5	290
Ulcer	1	12	3	2	1	42	2	10	2	12	3	90
Psora	–	2	–	–	–	–	–	–	–	–	–	2
Eruptions, &c.	–	3	–	–	–	–	–	–	–	1	1	5
Dyspepsia and Debility	–	13	1	3	4	11	3	3	–	15	–	53
Headache, &c.	3	9	–	2	–	–	–	–	–	–	–	14
Dropsy	–	*b* 1	–	–	–	–	–	–	–	–	–	1
Worms	–	*c* 1	–	–	–	3	–	–	–	–	–	4
Wounds and Injuries	1	34	5	8	1	206	28	30	3	59	16	391
Burns and Scalds	–	1	–	–	–	3	–	1	–	2	1	8
Total	22	238	19	45	8	687	120	129	20	208	54	1,550

a 1 Psoas abscess; and 1 Fistula. *b* Œdema. *c* Tænia.

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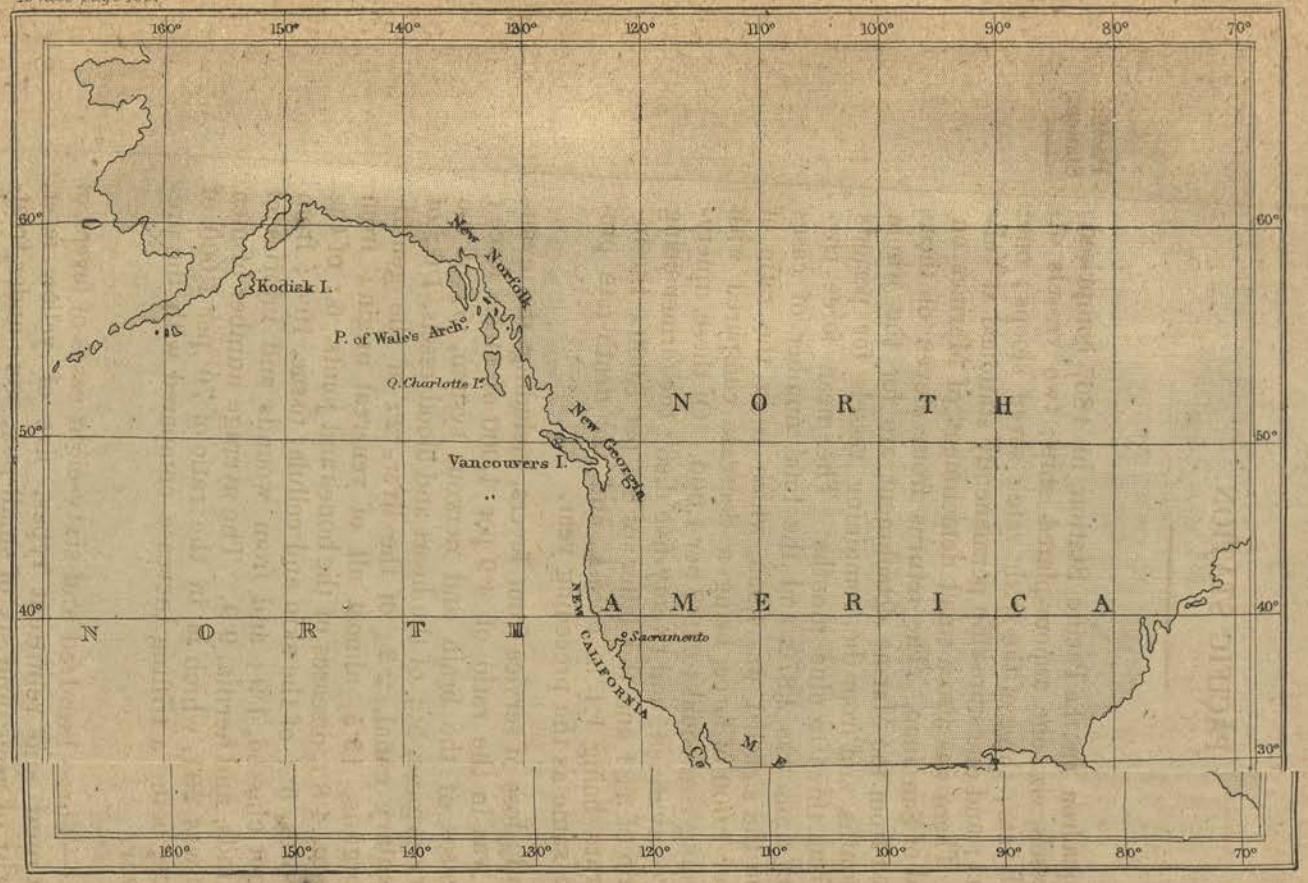
PACIFIC STATION



PACIFIC STATION.

Pacific Station.

THE squadron on the Pacific Station in 1867 comprised fifteen vessels, viz., one armour-plated ship; two vessels of the fourth rate; three of the sixth rate; seven sloops; one gun-vessel; and one store-ship permanently stationed at Valparaiso. There was also a small detachment of Marines on the Island of San Juan. The returns from eleven of these vessels and from the Marine detachment are for the whole twelve months, and from the remaining vessels for periods varying from three to nine months. The mean force corrected for time was 2,870, and the total number of cases entered on the sick-list was 4,955, which is in the ratio of 1726·4 per 1,000 of force, being a decrease compared with the preceding year equal to 19·2 per 1,000. Of these, ninety-eight were invalided, and twenty-five died; the former being in the ratio of 34·1 and the latter of 8·7 per 1,000; the invaliding-rate being 1·1 in excess, and the death-rate precisely the same as the preceding year.

The daily loss of service from fevers, including the exanthemata, was in the ratio of 4·9 per 1,000 of mean force; from diseases of the brain and nervous system, ·5; of the respiratory organs, 5·; of the heart and bloodvessels, 1·6; of the alimentary canal, 2·3; of the liver, ·2; of the genito-urinary organs, 15·5, almost all of venereal origin; from rheumatism, 4·8; diseases of the bones and joints, ·6; of the special senses, 5·; of the skin and cellular tissue, 19·4; from diseases not classed, 1·9; and from wounds and injuries of various kinds, and hernia, 9·9. The average number of men sick daily was 201, which is in the ratio of 70· per 1,000 of mean force, being a trifling increase compared with the preceding year.

Fevers.—Three hundred and sixty-eight cases of fevers of the continued and remittent types, five of yellow fever, eighty-eight of ague, and six of small-pox, were under treatment during the year, and of these all the cases of yellow

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fever proved fatal. Each case of continued and remittent fever was, on an average, twelve days under treatment; each case of yellow fever about four days; each case of ague about eight days; and each case of small-pox between twenty-four and twenty-five days.

Continued and Remittent Fevers.—There were eighteen cases of primary fever in the Alert, all of which are classed as ephemeral. The average duration of each case was between two and three days. They presented no features of interest. The same may be said of twelve cases of primary fever which were entered on the sick-list of the Cameleon in the Christmas quarter of the year, four of which are classed as continued and eight as febricula. They were all, however, ephemeral in character, the average duration of each case being under five days.

There were 170 cases of primary fever in the Clio, 114 of which occurred in the Lady quarter of the year, and forty-seven in the Midsummer quarter. The average duration of each of these cases was between twenty-five and twenty-six days. In the Statistical Report of the Health of the Navy for the Year 1866, the history of the exposure to which this ship's company was subjected, when employed on the Coast of Central America, was detailed at some length, and a description given of the form of fever which, as a consequence, prevailed epidemically amongst them. It was then stated that she had left Panama on the 29th of September for Vancouver's Island, where she arrived on the 23rd of November.

The ship's company generally suffered greatly from the long voyage, during which they were much exposed to cold and wet. After a short stay at Vancouver's Island the vessel left for Valparaiso. It was during this voyage that fever again became epidemic on board. The surgeon* of the ship says:—

"Her Majesty's Ship Clio left Vancover's Island on the 13th of December 1866 for Valparaiso, intending to call on the way at the Sandwich and Society Islands. During her stay at Esquimault the health of the crew improved wonderfully, the fever almost totally disappeared, and if we had been so fortunate as to have had a longer stay there I feel confident that the ship's company would have perfectly recovered health and strength, and that the last traces of

* Acting Surgeon John Walsh, M.D.

of fever would have disappeared. After leaving Esquimault we encountered very bad weather, constant gales with much rain. The men were in consequence greatly exposed; several suffered from catarrh, and relapses of fever occcurred from the men not having recovered sufficient strength to endure the additional labour. We arrived at Honolulu on the 12th of January, and remained there six days; then sailed for the Society Islands, taking bullocks with us and as much fresh vegetables as we could conveniently stow. At Honolulu the number on the sick-list again decreased, and remained low on the passage to the Society Islands.

"We arrived at Raiatea on the 7th of February, and sailed on the 13th for Tahiti, where we arrived on the following day. There we remained six days, when we sailed for Valparaiso, also on this occasion taking bullocks with us. Immediately on leaving Tahiti the sick-list again began to rise, several cases of remittent fever re-appearing. For four weeks we encountered constant foul winds from the eastward, and at the end of that time we found ourselves in lat. 41° 6′ S., long. 145° 3′ W. It being then feared that provisions would fall short, it was determined to run back to Tahiti, where we arrived on the 29th of March. The number on the sick list then reached as high as fifty, chiefly cases of remittent fever, and after our arrival there it did not begin to abate for some time.

"The French Governor, the Comte de la Roncière, very kindly placed at my disposal an island near the entrance of the harbour of Papeite. It received the full benefit of the trade wind, and several cocoa-nut and other trees afforded a very agreeable shade. On the island were two houses, which I immediately fitted up as hospitals, the French authorities supplying me with as many iron bedsteads as I required, and also undertaking to prevent all communication between the island and the mainland. I at once sent to the island all those who were suffering from fever strong enough to be removed, and a very great improvement was soon apparent; chiefly, I believe, from the men being able to take plenty of exercise and having freer and better air than they would have had on board, besides receiving all the benefits of the shore without the usual evils attendant on their going on leave.

"The remittent fever shortly almost entirely disappeared.

"The treatment consisted in the administration of ten-grain doses of quinine twice daily, as soon as irritation of the stomach had ceased. At first, when the attack came on, I used to give emetics, but I soon abandoned this plan, the irritability of the stomach being too great to permit of its continuance. During convalescence large quantities wine and other stimulants had to be given, as the prostration of strength was very great, and in many cases continued for a long time after the men had returned to duty."

The deleterious effects of the peculiar exposure to which this ship's company were subjected off the coasts of Mexico and Central America during the previous year, were evidenced not merely by this outbreak of febrile disease, but by the generally debilitated condition which they presented for a

 long

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long time subsequent to their arrival at Valparaiso. Their stay at that port, however, in time, effected a very beneficial change upon them, although slight aguish attacks were very common amongst those who had been sufferers from remittent fever.

The medical history of the Clio in the years 1866 and 1867, however painful to the subjects of it, cannot fail to be of profit, if it serves to point out the grave consequences that are liable to follow exposure to malarious influences in certain well known pestilential localities. It is questionable whether there are any more deadly places on the West Coast of Africa, than are San Blas, Manzanilla, and Acapulco on the coast of Mexico, during certain seasons of the year, and at such times nothing but the most urgent demands of the public service should justify any communication with them.

There were only two cases of primary fever in the Columbine, one of which is classed as febricula, its duration being four days; while the other, which is classed as continued, was twenty-six days under treatment. The latter case presented some peculiar features. The man, a seaman, had been on the list with a boil on his foot, when he was attacked with rigors, followed by severe frontal headache, pain in the loins and limbs, anorexia, great heat of skin, a bounding, rapid pulse, and general malaise. The tongue was thickly coated and the bowels confined. There were no catarrhal symptoms, nor any lesion of an internal organ to account for the pyrexia. The urine was high coloured, and contained an increased quantity of lithates. He perspired profusely at night, but the fever had no marked remissions. Occasionally there was delirium at night. The febrile state lasted five days, during which he lost much flesh and became extremely weak. The surgeon* says:—

"This peculiar form of fever is not uncommon in Chili. The Indians name it Chavo-longo, disease of the head, in allusion to the violent headache which is one of the striking symptoms. The Jesuit, Don Juan Manuel Molina, in his 'Historia del Reyno de Chili,' says 'This burning fever prevails in summer and autumn. The country people (gente del campo) are particularly subject to it. It is accompanied by delirium. The Indians name it, chavo-longo, diseases of the head, &c. &c.'

"During

* Surgeon J. W. S. Meiklejohn, M.D.

"During the continuance of the fever small quantities of wine, beef-tea, diaphoretics, and saline purgatives were administered. After the febrile systoms had subsided wine and quinine were given. The patient's appetite became almost ravenous, and he speedily recovered his flesh and usual strength."

There were single cases of primary fever in the Malacca, and in the Marine detachment at San Juan, but in neither instance were they of any importance.

In the Mutine there were eighteen cases of primary fever, eleven of which are classed as remittent, and seven as febricula. They all occurred during the Midsummer and Michaelmas quarters, during the former of which the vessel was stationed on the Mexican coast, and during the latter, on the coast of Central America. The cases of febricula were of a very ephemeral character, the average duration of each being little more than three days, while each case of remittent fever was, on an average, between seventeen and eighteen days under treatment. Of the cases which occurred in the Michaelmas quarter, the surgeon * says:—

"In addition to these, we had at Taboga eight cases of remittent fever, which were similar, although more severe in character than those alluded to as having occurred in the Gulf of California. They gave an average of eighteen days' sickness to each. Amongst these men also, there had been no exposure in boats or otherwise. No leave had been given at this time for several months. The attacks were probably due to some malarious influence at Taboga, to which some of the men were perhaps more susceptible than others. There was very severe headache, with giddiness at the commencement, in nearly all the cases, and in the majority tenderness at the epigastrium, with occasional vomiting. The pulse was very rapid in many cases, and in one stood at 140 for two days. This, at the time, I considered a very alarming symptom, but, curiously enough, it turned out one of the mildest cases. All the men suffering from fever on the present occasion were placed on the sick-list between the 22nd of August and the 3rd of September, and at first they caused considerable anxiety, as yellow fever had been very prevalent at Taboga, a short time previously. On account of the tendency to vomiting, I was obliged to be careful with the quinine, and in many cases was contented with giving a mild aperient, cutting the hair close, cold sponging if there was much heat of skin; and, to allay the vomiting, a sinapism to the epigastrium, with an ordinary effervescing draught frequently repeated; and when the stomach was quiet, to be ready with the quinine. Six out of the eight men got well; it was necessary to invalid the remaining two.

In

* Surgeon James Martin, M.D.

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In one of these I had some suspicion of malignant disease of the stomach from the obstinate vomiting which nothing could control; and in the other, palpitation of the heart supervened during his convalescence from the fever, and as he was originally of a very feeble constitution, I considered a change of climate to England afforded him the best chance of recovery."

There were five cases of primary fever in the Reindeer, each case being on an average twelve days under treatment. The disease seems to have been contracted on the coast of Mexico, but little or no information is given in connection with it.

There were seventy-five cases of primary fever in the Scout. Of these, sixty are classed as febricula, six as remittent, and nine as continued. Forty-six of the cases of febricula and all the cases of continued and remittent fever occurred during the Midsummer and Michaelmas quarters of the year, when yellow fever had made its appearance on board; and as many of these cases were doubtless only modified forms of the more malignant disease, it will be better to consider them hereafter in connection with that epidemic.

There were fifty-six cases of primary fever in the Topaze, fifty-four of which are classed as ephemeral, and two as enteric. As the average duration of each case of so-called ephemeral fever, however, was over seventeen days, the term appears to be somewhat misapplied, it being probable that several of them were more or less mild cases of enteric fever. The only two cases classed as enteric occurred in the Lady quarter of the year, at which time also twenty-nine cases of ephemeral fever were entered on the sick-list. In the return for that quarter the surgeon * remarks:—

"The fever constantly present in this vessel since the middle of July 1866 (then noted 'influenza') broke out again on the 9th of March. A case, graver than ordinary, occurred in a domestic, and is classed as typhoid, from the roseoloid eruption, then first noticed. From him, other domestics seem to have imbibed the disease. In all cases, the gastro-intestinal canal has suffered more than the naso-pulmonary membrane. It is especially to be noted that the fever symptoms are slight when compared with the exceeding tardy convalescence. At the outbreak of the fever the symptoms varied much in character."

Very little is to be learned from the returns from this vessel as to the precise nature of this outbreak of fever. Some allusion

* Surgeon J. L. Palmer.

allusion is made to bilge smells in connection with it, but it appears almost unnecessary to remark that there is no evidence that enteric fever ever had its origin from such a cause; and as the disease appeared after the return of the vessel to Valparaiso, which, it is said from over-crowding and utter disregard to sanitary precautions, is the most unhealthy port on the station, the probability is that the disease was first contracted on shore, and then spread to the ship's company by infection. Happily, it did not occasion any mortality.

There were seven cases of primary fever in the Zealous, six of which are classed as remittent, and one as febricula. The average duration of each case of remittent fever was nearly thirty-one days. The disease appears to have been contracted at Valparaiso, but did not make its appearance until after the vessel had left that port for Callao. In one case, that of an officer, the symptoms were very mild, and readily yielded to treatment, but the medical officer * remarks:—

"The other cases were rather severe, somewhat irregular in the febrile remissions and accessions, while many of the symptoms much resembled those occurring in fever of the typhoid type. Except in the officer's case, which did well, the patients, at the termination of the fever, were left in an extreme state of prostration, and the convalescence was tedious, although, except in one case, there was no complication. In that instance the man showed symptoms which were considered to be those of phthisis, and for which he was discharged to the hospital at Esquimault; but from the good recovery he made, it became apparent that the disease under which he laboured was chronic pneumonia, and not the more serious malady, tubercular disease of the lungs. . . . . The town (Valparaiso) was said to be healthy, that is, no epidemic prevailed, though fever of a peculiar type existed on shore, and in Her Majesty's ship Topaze, which, with the Sutlej, was at anchor in the bay. The majority of the Topaze fever cases were of the continued (enteric) form, the remainder of the remittent type. Several of the cases seen under treatment at sick quarters bore all the distinctive marks of typhoid."

Yellow Fever.—Only five cases of this deadly form of fever appear in the returns from the squadron, but they all proved fatal. They were, in fact, the fatal cases of an epidemic of this disease, which made its appearance on board the Scout at the close of the Midsummer quarter of the year, and continued during a part of the Michaelmas quarter. The Scout arrived

* Staff Surgeon M. Burton, M.D.

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arrived at Panama on the 14th of March, and found that yellow fever, in a very fatal form, was well known to have been prevalent on the Isthmus ever since the month of January, but it was stated, on authority that was considered reliable, that at that time it had all but disappeared, there being only an occasional isolated case, which was generally attempted to be concealed, but on becoming known was attributed to some undue exposure, or to being imported from some infected port. The assistant surgeon* of the Scout, who afterwards, on the death of the surgeon (who fell the first victim of the epidemic), became the acting surgeon of the vessel, and from whom the following interesting history of the yellow fever epidemic at Taboga, and on board the Scout, is taken, remarks at this time:—

" . . . . it was also well known that the United States storeship Jamestown, which has been stationed at the place, had suffered severely, and had lost a large proportion both of officers and men. She was at anchor off an island about four miles from the town, and during the early part of our stay, cases frequently occurred on board, although the actual extent was never known, partly on account of the great unwillingness of everyone on board to afford information, and partly also from there being no direct communication between the two ships during the time they were lying in the vicinity of each other. Under circumstances of the nature referred to, it always becomes a matter of great difficulty to arrive at the truth, as those who are in the best position to afford information on the subject are also those who are most interested in withholding it, and in evading the truth, or suppressing it as much as possible. During the time that the epidemic was at its height, and concealment impossible, the amount of traffic across the Isthmus decreased to such a considerable extent as materially to affect the private interests of the inhabitants whose principal support it is; and it is only natural that when it commenced to decline, they should use every endeavour to re-establish it as soon as possible by proclaiming the healthy state of the district, without taking into consideration the disastrous effects which such a line of conduct might have on those who would thereby be induced to place confidence in it."

The Scout left Panama on the 19th of March, and arrived at Taboga on the following day. Up to the latter end of March, Taboga remained healthy; the only cases which occurred there, or were known to occur, being two, both of which had been brought over from Panama, where they had been seized, and both of which proved fatal, with black vomit, and

* Assistant Surgeon William Carmichael, M.D.

and other unmistakable symptoms of yellow fever. These persons were servants of the Pacific Steam Navigation Company.

" This month (March) was interesting in a sanitary point of view, on account of the introduction of yellow fever in an epidemic form among the employés in the factory of the Pacific Steam Navigation Company, on the Morro, an isolated portion of the Island of Taboga, which is separated from it by a narrow isthmus, but is entirely surrounded by water at high tide. It originated, without doubt, in the removal of two cases which were attacked on board one of the Company's steamers to the hospital on shore, and the history of the origin of these two cases is not without some interest. It would appear that during a previous voyage of the steamer in which these cases occurred, over three months previously, two fatal cases of yellow fever occurred, both of which were suffering from the premonitory symptoms when embarked at Panama. One of these died two days after leaving port, and the other on the day the steamer arrived at Callao, eight days after the embarkation, and both died with black vomit. Both of these cases occurred in the persons of men who had been living for several days at Panama, where they had come from New York, and were waiting for the sailing of the steamer. They were known to have been drinking freely during the time they were detained, and had doubtless exposed themselves to the contagious influence of the epidemic, which was then at its height, while their constitutions were well adapted to receive the nucleus of the morbific matter. These cases were attended and nursed by one of the servants on board the steamer, and he was the one who was first seized a week after the ship's return to Taboga, where no fever was known to be present, and at a period of not less than three months' from the time of his attendance on the sick passengers previously mentioned; consequently he had never been directly exposed to the contagion for that period of time. The other case occurred in the person of another servant who occupied a berth in the same cabin, so that the origin of his case need not be looked for beyond that. As soon as these cases declared themselves, they were removed to the hospital on shore, where they both died with black vomit. There is every reason to place entire credence in the statement, that all the articles of bedding and clothing likely to have been infected by the two passengers, were destroyed, and the remainder of their effects had been left behind at Callao, or some other port on the coast of Peru; while the cabins which had been used by them were locked up, disinfected at the first favourable opportunity, and not used till it was supposed all cause for apprehension was past. It is hardly consistent with our present knowledge of the origin of yellow fever to presume that the seeds of the disease were laid and remained latent in the system for such a long period as ninety days, and although the servant originally attacked had slept on shore at Taboga for two or three nights after his arrival and previous to his seizure, still he had had no communication with Panama, and Taboga was, up to that time, free from the disease. It having been suggested that he might

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have appropriated some portion of the clothing or other effects of the passengers on whom he had been in attendance, and thereby carried the disease from one place to another, till he arrived at some place favourable for its being brought to maturity, a strict search was instituted, but nothing was discovered that would lead to such an impression. However, there is no necessity for looking beyond the fact, that during his attendance his own clothing became infected, and perhaps was laid aside for a time, but still retained the morbid elements for producing the disease, which required a higher temperature, and perhaps some other peculiar atmospheric and meteorological conditions, which were wanting when the steamer was in southern latitudes, and prevented its development till her return to Taboga. . . . . For the origin of the fever at Panama, there is no necessity for looking further than the fact of the rapidity of the steam communication between that port and the island of St. Thomas, which latter place was suffering so severely at the same time, and from which it was without doubt imported; but there must have been other favourable influences under which the disease was received and fostered, and which tended to prolong the epidemic for such a length of time."

The cause which chiefly operated, he thinks, in prolonging the epidemic, and which exerted the most prejudicial influence on the health-state of the isthmus, was the exceeding dryness of the season, very little rain having fallen, and that at such long intervals between each rainfall, that places which were usually covered with water at that season of the year became nothing but putrid swamps, from which every particle of moisture, loaded with malaria, had time to evaporate before rain again fell. He continues:—

"Of the atmospheric phenomena which preceded the outbreak as it happened at the Morro of Taboga, nothing except the increase of temperature was noticed, as also the presence of large quantities of ozone in the atmosphere. There was no other peculiarity which could be detected that could be considered as likely to exercise any influence on the production, modification, or decline of the epidemic. The medical officer attached to the hospital of the Pacific Steam Navigation Company, who has been resident on the island for twelve years and upwards, made a long series of meteorological observations, with the view of endeavouring to determine any relation that the one might have with the other, but failed in finding any.

"During the month of June several cases of fever, some of them of considerable severity, had been under treatment, but they were considered to be, and treated as, cases of remittent fever, and were not deemed of any more importance than their individual severity entitled them to. On the last day of June, however, early in the morning, the surgeon* of this ship was taken ill with severe frontal headache,

* Surgeon James Sproule.

headache, and pain across the loins, these symptoms being preceded by a rigor, and being accompanied with a dry skin and great thirst; the tongue was covered with a white fur, and the bowels were in a very relaxed state. Great irritability of the stomach set in, and the vital powers at an early period became much depressed. His case ran a rapid downward course, and he died on the morning of the fourth day, with all the symptoms of yellow fever excepting black vomit. At this time the only other case of importance on board was that of an officer who was under treatment for what was considered a rather severe attack of remittent fever. The prevalence of yellow fever on shore, however, and the death of the surgeon, who it was known had been in attendance on some of the sick poor of Taboga, roused suspicion, and rendered it necessary that further precautions should be taken to arrest the progress of the disease, and to prevent its introduction into the ship in an epidemic form. This was done by employing all the sanitary measures available, and more especially by isolating all cases that from their premonitory symptoms were likely to run into yellow fever. The case of the officer (alluded to above) was remarkable in the similarity of its symptoms, and of the conditions under which it commenced, with that of the surgeon. The seizures of each took place at the same time, and the two ran, as it were, an even course up to the evening of the 2nd of July, when, however, they became widely divergent, the one proceeding rapidly to a fatal termination, but the other seemed to have arrived at a favourable crisis, and steadily to improve, with the exception of an exacerbation which occurred on the night of the 3rd, and was attributable to his falling asleep exposed to a current of air, and waking with a chill. In the commencement of these two cases there was this difference, that while the surgeon had remained during the whole of the 29th of June on board the ship, the other officer had spent the best portion of the afternoon on shore at Panama, where yellow fever was known to prevail at the time. The day was exceedingly hot, and he had been exposed to the fierce heat of the sun for several hours; while on returning to Taboga he fell asleep on the deck of a small steamer, when the usual damp breeze was blowing, which is almost constant in the evenings, and of a temperature several degrees below that of the afternoon. It is unlikely, however, that the latter imbibed the morbific influence at Panama, as our present knowledge of yellow fever will hardly admit of the belief that it could manifest itself so rapidly after the first exposure to the influence of contagion or other exciting cause. However, during that afternoon, he was placed in the most favourable circumstances for developing any previously acquired germ, and no doubt his system was then ripe for its manifestation. It is difficult to come to any other conclusion than that there was a most intimate connection between these two cases, and that the existence of the one depended on the pre-existence of the other, or that the two originated simultaneously from one common cause. It was known that the surgeon had been in attendance on some cases among the native population on shore, although they were reported not to be yellow fever, of which the island was said at that time to be completely free. The cabins of these two officers

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were contiguous, but it is difficult to say how much importance ought to be given to that fact, as indicating the effects of contagion, for it was afterwards discovered, and this is a matter of great significance, that inside the lining of the ship in these two cabins, as well as in a third adjoining the surgeon's on the other side, and the occupant of which also was the subject of a severe attack, there was a large accumulation of decaying matter, consisting of chips of wood which had been gnawed by rats, shavings which had never been been removed since the ship was built, or at any rate repaired; old canvas clothing which had been neglected and nailed up before the ship was commissioned, besides an abundance of the ordure of rats, dead cockroaches, and other filth; the whole of these had been kept in a state of slow decomposition by the constant dropping of water from above, the result of the unsound and leaky condition of the upper deck. It is impossible to say to what extent such a state of matters was responsible for the actual production of these cases, but it is not surprising that when an influence was imbibed, it should have come to maturity under these favourable circumstances. The simultaneous occurrence of these two cases which were exposed to the influence of the miasma which must have been generated during the putrefaction of these organic matters is a coincidence which is not a little remarkable. It will be observed, that while the case of the surgeon has been entered and reported on as one of yellow fever, that of the other officer appears as remittent fever, but they were undoubtedly identical in their origin, symptoms, course, and in every other respect except their termination. It is not a very easy matter to name diseases of that description as they occur, and the method which has been pursued in this instance was to classify them as yellow fever, remittent fever, or febricula, according to the severity of the case. Those entered as febricula were those which were comparatively mild, and some of which only occupied a few days on the sick-list; those as remittent fever which were more severe; while only those which had a fatal termination were entered as yellow fever; but it must be understood that in each the disease was essentially the same. The arrangement is by no means a good one, as the cases were all of a similar nature, and varied only in degree; but it would be equally erroneous to include all under the heading of yellow fever.

" After the occurrence of these two cases, no other case of febrile disorder presented itself until the 8th of July, when one case of febricula was added to the sick-list, trivial in character and in symptoms, and which was discharged to duty after two days' treatment. On the evening of the 10th, however, a case presented itself, the symptoms of which were very severe, and of such a nature as to rouse suspicion. It occurred in the person of a seaman who had not been out of the ship for three months previously, and did not belong to any of the boats which had been in the habit of doing any of the work of the ship. On the evening of the 12th, another case presented itself in which the symptoms were still more severe, although their character was the same. This person was a mess servant, a man of pale anæmic appearance and cachectic constitution, who had been frequently under treatment for nervous debility. In this case the

the disease ran, as it were, a natural course to a fatal termination, with alternate irregular exacerbations and remissions, every unmistakeable symptom of yellow fever being present, the whole course lasting nearly five days. This man also had not been out of the ship for months previously. The next person attacked was a seaman who had been on the sick-list from the previous 28th of April, on account of a series of epileptic seizures, and was waiting an opportunity for survey. He had been in the habit of assisting in the duties of the sick-bay, and had not been on shore since he was originally entered on the sick-list. He was seized on the 15th with symptoms remarkable for their severity from the outset, which led to a most unfavourable prognosis. There were also abdominal complications which materially aided in bringing the disease to a fatal termination by reducing the strength of the patient, who was a powerful man, of great muscular development, a teetotaller, and of steady regular habits. This case proved fatal in four days from the commencement of the attack. Some difficulty was experienced in its diagnosis, in consequence of the symptoms complained of being nothing more than an exaggeration of those from which he had so frequently suffered while on the sick-list for treatment, consequent on his epileptic attack. The headache was not confined to the frontal region, nor for some time was it referred there at all, but the vertex was the region principally affected, which had also been the case throughout. The tongue likewise originally partook more of a character indicating the existence of some inflammation than that of yellow fever, but the day after the commencement of the attack the tongue assumed the characteristic features of that disease. In the absence of any tangible disorder, treatment had been directed to the relief of symptoms, and in either case would not have differed in any material or important particular.

"By the occurrence of these cases, it was now put beyond a doubt that yellow fever was commencing to take hold on the ship, notwithstanding all the care which was taken in observing the strictest sanitary arrangements, and it became absolutely necessary to institute some more decided change with the object of at least endeavouring to arrest the further march of the disease. Matters had begun to assume so serious an aspect, that after a careful deliberation on all the circumstances previously detailed, and taking into account the depressing effect they were beginning to exercise on the ship's company, it was decided upon to sail without further delay for the north, and the ship left Taboga on the 19th of July for Vancouver's Island; as will presently be seen, the wisdom of this step was fully borne out by the result.

"After leaving Taboga the ship continued under steam for several days, with the view of altering as rapidly as possible the circumstances under which she had so long been placed, and getting under the influence of the north-east trades, so as to reduce the temperature, and get to a more northern latitude in the shortest possible time. On account of the peculiar formation of this part of the North American continent, it is a matter of necessity to stand a long distance to the westward before the latitude can be increased, and consequently a considerable time must elapse before any material

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difference in temperature can be observed. However, it was to be presumed, that as there had scarcely been time for full impregnation such alteration as would result from removing the community from the nidus of the disease, could not but be attended with some benefit. This idea was confirmed by what subsequently took place, for although numerous cases occurred, the majority were less severe in character, and, in addition, there was a certain decided change in the combination of symptoms which approximated, if it did not actually attain, to a change in type, and which rendered the disease more amenable to treatment. On the day that the ship left Taboga one case of febricula was added to the sick-list; on the following morning four others presented themselves; on the 21st, six; on the 22nd, six; on the 24th, three; on the 25th, one; on the 26th, one; on the 28th, one; on the 29th, one; on the 30th, two; on the 2nd of August, two; and on the 3rd, one; so that at the end of three days the epidemic had reached its climax, and from that time began to subside. This was more than could have been hoped for had the ship remained exposed to the evil influences at work while stationary at her anchorage. As the cases decreased in number, so did they in like manner, as a whole, decrease in severity, with one exception, those last attacked being remarkable for their mildness. The exception occurred in the person of a seaman who did not apply for advice, or admission to the sick-list, until the 9th of August, after all danger of another outbreak was supposed to be past. At the time of his appearance, he stated that he had not felt well for a week or ten days previously, but not to such an extent as to incapacitate him from work till the previous night, when he experienced a severe rigor. This case was very unfavourable from the commencement, proceeding rapidly to black vomit, from which he rallied, but he ultimately died of exhaustion. There were some remarkable features connected with this case, which will be presently adverted to.

"The change already alluded to, which took place in the disease after leaving the infected district, was soon observable, and showed itself in various ways, partly by the occasional absence or perversion of one or more of the characteristic symptoms, or by the presence, in some instances, of a peculiar symptom foreign to the usual course of the disease. Notwithstanding the favourable change in the majority of the seizures, cases were also present where every symptom of yellow fever manifested itself in all its intensity, running on to black vomit, and terminating in death. Diarrhœa with abdominal tenderness was not an unfrequent forerunner of the attack, and a complication which was very formidable to combat, as tending so greatly to reduce the vital powers of the patient, which it is all important to husband, to enable him to answer the severe call about to be made on his system. Of the more prominent symptoms, whose occasional absence showed that at any rate there were instances of marked variation in the course of the disease, the one most frequently observed was the severe dragging pain across the loins, and in such it was also observed that the kidneys were less affected than when this symptom was present. This was evidenced by the continuance of a copious discharge of urine, and was looked

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on also as most favourable in forming a prognosis. The characteristic appearance of the tongue also was sometimes found to be wanting. The condition of that organ, which, when present with other symptoms is considered as pathognomic of yellow fever, does not imply by its absence that the case is of necessity not one of that disorder. In more than one case the tongue from the first was brown and dry with a hard centre, and a margin having a tendency to abnormal redness, and was indicative of great nervous depression and exhaustion. It generally co-existed with diarrhœa, and was always premonitory of a case of unusual severity. Occasionally, but this was exceptional, the gastric symptoms were wanting altogether, or were present in such a limited degree as to cause no inconvenience, and even escape the observation of the patient himself unless his attention was particularly directed thereto. More frequently they were modified in character, as, for instance, nausea and vomiting might exist without any pain or tenderness of the epigastrium, or burning sensation of the œsophagus, or pain might be experienced without any irritability of the organ. In some instances, in addition to, or instead of, the usual lumbar pain, there existed general muscular pains affecting the whole body, but principally referred to the pectoral and abdominal muscles; or pain would shift, as by a metastasis, to both or either ilium, or to the sacrum, or to the interscapular space, or over one or both scapulæ, or it might exist in one or all of these situations, while the lumbar region continued free. Of all the symptoms, however, which by their presence indicated that some important change had taken place in the type of the disease, the most decided was the occurrence of a scarlet eruption which manifested itself in numerous instances in such a manner as to point out its connection with the febrile attack. Some doubts were at first entertained as to whether they bore any relation to each other, as many of those who were attacked were also the subjects of prickly heat, which assumes such a variety of forms as to be very liable to deceive, but the steady regularity which it displayed in several instances in the mode of its appearance and disappearance was sufficient to establish an intimate connection between the two. It was never observed before the second day, and its early appearance was considered favourable. It generally commenced on the trunk and spread to the extremities, which latter were always more thickly covered than the body. It was of a scarlet colour, raised above the level of the cuticle, and showed no regularity in its disposition. Desquamation occurred during convalescence, and the palms of the hands and soles of the feet continued to lose the cuticle in thin layers, sometimes for weeks after recovery was complete. Also after convalescence was established, peculiar shooting pains were experienced in the extremities, darting downwards from the shoulders and elbows to the tips of the fingers, and from the hips and knees to the tips of the toes, communicating a sensation much resembling that which is produced by a weak current of galvanism. These symptoms thus detailed bore such a close resemblance to those of broken-bone fever, the scarlatina rheumatica, or dengue of American authors, as to suggest an idea of their identity, and a close observation of their course tended to the confirmation

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firmation of such an opinion. I may mention that I had an opportunity of observing the phenomena of this disease, during the prevalence of the epidemic which occurred at the island of Bermuda in 1863, and a description of which is to be found in the Report of the Health of the Navy for that year. If, therefore, the conclusion be correct that these cases were of the same type as those which occurred during that epidemic, it becomes interesting to inquire if any or what connection there was between the two as they occurred on board the ship, and I am strongly inclined to agree with the view that broken-bone fever, so called, is but a phase of development of the more serious disorder. It is a matter beyond all doubt, that during the latter period of the ships stay at Taboga several cases of true yellow fever occurred on board, three of which proved fatal, two with black vomit; also, after proceeding to sea, that several other cases of yellow fever occurred, two of which also proved fatal, with black vomit, yellowness of the skin, and all the other unmistakable symptoms of that disease. It has likewise been seen that after leaving the anchorage at that port, there were numerous cases of a febrile disorder resembling in many important particulars the early stages of yellow fever, but manifesting such divergences from the usual course of that disease as almost to constitute a distinct affection, and resembling broken-bone fever so closely as to be nearly identical with it. Such being the case, either two febrile epidemics closely allied to each other were present at the same time, or the sets of symptoms in each were phases of the same. The simultaneous existence of two epidemics partaking so largely of similar characteristics is extremely improbable, while there is a strong probability in favour of the fact that the one was but an altered form of the other. The alteration of the topographical relations of the ship, as well as certain obscure atmospheric and meteorological combinations consequent on such alteration, would be not at all unlikely to produce such a change in the type only of the disease, either from the arrest of development of the poison in the system, or from some perversion of it, as to give rise to phenomena resembling, though not identical with, those previously in existence. It is reasonable to suppose that the predisposing and exciting causes were the same in both. The former would include those numerous depressing effects of a prolonged residence in a warm humid climate, without the opportunity for relaxation on shore, the want of variety in diet, and the necessarily limited sleeping accommodation and breathing space for each individual, all of which are unavoidable, but still have their evils, and must exercise some prejudicial influence, however inappreciable. It is rather a remarkable circumstance that it was not until after a three months' residence, and exposure to such causes, that fevers of that class appeared, although they were common on shore; and it is worthy of remark that as nearly as possible the same period elapsed before any seizure occurred amongst the recently arrived mechanics belonging to the Pacific Steam Navigation Company's factory on the island. These men, to the number of fifty, arrived in the early part of the year, at the time when the epidemic was at its height, and they continued healthy until nearly the end of March, when the disease made its appearance among

among them, and did not cease until it had run through the whole without exception. During the whole of this time the Scout was remarkably healthy, but at the expiration of three months' stay, and when the epidemic at the factory had nearly subsided, the first case occurred on board, and from that began to spread. This curious coincidence would incline to the belief that isolated bodies of men are more susceptible of the evil influence after their constitutions have been brought into a certain condition, and that, at least in these two instances, three months was about the time requisite to produce such effects. If the ship had remained, there are no grounds to presume that the crew would have escaped more than the other white community stationed on the Island; in fact there is every probability that they would have suffered to, at least, an equal extent, and it is to the prompt and judicious removal of the ship from the infected locality, that we must attribute the favourable result which followed."

This very excellent report on the appearance of yellow fever at Panama, Taboga, and on board the Scout, has been taken at length from the journal of the acting surgeon of the vessel. It is an interesting addition to the already numerous histories of yellow fever epidemics, and is curious in some of the details connected with it. The question of the supposed affinity between dengue and yellow fever was discussed in the Statistical Report of the Health of the Navy for the year 1863, when commenting on the epidemic of the former disease which prevailed at Bermuda in that year, and which is referred to above. It was there shown that although dengue was extensively epidemic at Bermuda in 1863, there was not only not a single case of yellow fever on that island in that year, but there was not an undoubted case of yellow fever in the whole West Indian squadron; and it was further stated that dengue has prevailed in Burmah, and in various localities in the East Indies where yellow fever is unknown. The conclusion arrived at then,—that there is no connection whatever between yellow fever and dengue—has not in any way been affected by later experience. That in all epidemics of disease of whatever kind, cases should occur in which the symptoms diverge from the type, and simulate more the characters of other diseases, is well known, and it is no more logical to insist upon an affinity between yellow fever and dengue, because in an epidemic of the former disease certain cases assumed some of the characteristics of the latter, than it would be to attempt to prove an affinity between enteric fever and yellow fever because in some epidemics of the latter disease, there have been cases complicated with abdominal symptoms. Neither can much be made of the coincidence that the newly-arrived

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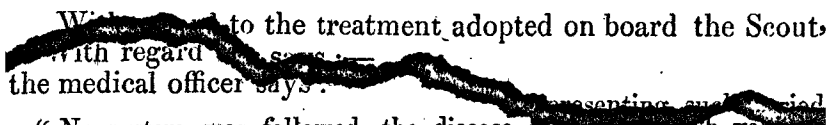
mechanics of the Pacific Steam Navigation Company were three months at Taboga before they were affected by the disease, and that precisely the same period elapsed in the case of the ship's company of the Scout. All that can be said of both communities is, that they were very fortunate in escaping so long. That they would have escaped altogether had they not been brought into contact with the disease may be inferred from the fact that it was not until two unmistakeable and rapidly fatal cases of yellow fever were landed on the island, that the Pacific Steam Navigation Company's people suffered at all; and that the ship's company of the Scout escaped until the surgeon, who had been in attendance on some cases on shore, brought the disease on board with him, and was the first to fall a victim to it. Depressing circumstances, whether of a physical or mental character, in proportion as they weaken the body predispose it to disease, but it certainly does not require a three months' training to prepare the system for the reception of the yellow fever poison.



With regard to the treatment adopted on board the Scout, the medical officer says:—

"No system was followed, the disease presenting such varied features at its outset in individual cases as to demand some special treatment in each. Symptoms as they arose were attended to, and treatment at the best was only palliative. At the commencement of an attack purgatives were found most useful, except when abdominal complications contra-indicated their use; and in more than one case there was reason to believe that an attack was averted, or at least aborted, after producing a speedy evacuation of the primæ viæ. After the bowels had been freely unloaded, the treatment consisted in the administration of mild diaphoretics, with small and frequently repeated draughts of mucilaginous and effervescing fluids, and counter-irritation, by means of sinapisms or blisters, to the epigastrium. Turpentine stupes were also found of great service in allaying the irritability of the stomach, which was a distressingly predominant symptom throughout. Cold applications to the forehead were very grateful in relieving the intense frontal headache, and deep-seated pain of the eyeballs, which seemed always to supervene as a consequence of the gastric disturbance. These two sets of symptoms, the gastric and the cerebral, either manifested themselves simultaneously, or else the head symptoms followed on the other, but in no instance was the order reversed, and this rule was so invariably followed as to suggest the idea of cause and effect. During convalescence, quinine was found most valuable, although the bark itself appeared to be better borne by the stomach. That organ long remained in a condition which resented anything but the blandest forms of ingesta, and the inability to digest the more nourishing articles of food tended much to keep up the general debility of the system, and thereby retard convalescence. As a prophylactic, quinine

quinine was proved in several instances to be utterly inert; severe attacks were experienced in the case of more than one officer who had taken it as a matter of precaution, and who placed implicit confidence in its supposed virtue till undeceived by the result. As a remedial agent during the progress of the disease, it was found to be not only useless, but pernicious. 'In almost every case in which it was exhibited, and in the cases of earlier occurrence it was never omitted, it had the effect of increasing the irritable condition of the stomach, and even when combined with morphia the result was equally unsatisfactory. The stomach appeared to be in a state of direct antagonism to the drug in any form, and more especially when administered in the form of solution with dilute sulphuric acid. These unfavourable results were produced alike at the commencement of the attack, and when the paroxysm had faded into the almost equally dangerous remission. Chloroform had a very beneficial effect in reducing the irritability of the stomach and checking the nausea, although it did not appear to exercise any beneficial effect in arresting or controlling the progress of the disease. However, it proved of great value in alleviating the distress caused by the constant efforts to vomit, and its stimulant properties rendered it a useful adjuvant in the treatment, but it had no specific influence to entitle it to any other position than that of an accessory."

Between the 29th of June and the 9th of August, when the last case was added to the sick-list, thirty-six cases of febrile disease were under treatment, five of which proved fatal. This gives an average of one death in about seven cases, which is somewhat lower than obtains in the majority of yellow fever epidemics. There can be little doubt, however, as the medical officer states, that all these cases, although arranged in various classes, were mere modifications of the same disease, and there can be no question that to the judgment and prudence displayed in at once leaving the infected locality for a northern latitude may be attributed the fact that there was not a much greater mortality.

Small-pox.—There were six cases of this disease in the Reindeer. They occurred during the passage of the vessel from Rio de Janeiro to Valparaiso, and were contracted at the former place, the first person attacked being a man who had been on shore there on leave. One or two of the cases were rather severe, but as a rule they were of a modified type, all those attacked having been previously vaccinated.

Diseases of the Brain and Nervous System.—There is a reduction in the different ratios under this head compared with the preceding year. Altogether, fifty cases of various forms of disease were under treatment, and of these five were invalided,

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invalided, and one had a fatal termination. The fatal case occurred in the person of a petty officer of the Malacca, who, whilst engaged in cleaning the copper on the outside of the ship, was observed to fall suddenly forwards, his arms hanging on the outside of the boat. He had not made any previous complaint of illness, and appeared in his ordinary good health. He was carried at once to the sick-bay, where he vomited a quantity of half-digested food. He was quite insensible, the pupils largely dilated, the pulse scarcely perceptible at the wrist, and the respiration which at first was slightly stertorous became slow and nearly imperceptible. Stimulants were attempted to be administered, but could not be swallowed. Ammonia was applied to the nostrils, a sinapism over the heart, hot water to the feet, friction to the extremities and body generally, and cold water was sprinkled over the face and head. He did not, however, rally, but expired about half an hour after the seizure. The following report of the post-mortem examination of the body is by the surgeon* of the vessel:—

"Body, well nourished. Rigor mortis well marked. On dividing the scalp, blood flowed freely from the incision, showing a highly congested condition of the parts. On removing the calvarium, about eighteen ounces of blood escaped, probably from laceration of the sinuses which took place in removing the calvarium, in consequence of old and very firm adhesions. On removing the dura mater, the vessels on the surface of the brain and between the convolutions were seen distended with blood. There was no extravasation of blood either upon or into the substance of the brain. The ventricles contained a large amount of serum, and the vessels of the plexus choroïdes were distended with blood. On examination of the thorax and abdomen, the lungs were found healthy and crepitant: the heart was large, soft, and flabby, and covered with fat to a most unusual extent, particularly the right side, where it was nearly a quarter of an inch in depth; the muscular structure was of a light brown colour, evidently in a condition of fatty degeneration; the valves appeared healthy. The liver was large, and presented a mottled appearance, which was also observable on cutting into it. The left lobe was mostly of a light brown colour, also owing no doubt to fatty degeneration. The kidneys externally did not present an unhealthy appearance, but when divided the cortical portion seemed abnormally pale, and the pelvis of the right one contained a small quantity of pus."

The post-mortem examination was considered to have shown that the seizure in the first instance was due to congestive

* Surgeon W. H. Cruice.

gestive apoplexy, from which the man might have recovered, had it not been for the diseased condition of the heart by which the apoplectic symptoms were masked, and which was actually the cause of death.

Four cases of delirium tremens were under treatment during the year. Of these one occurred in the person of a ship's tailor, one in a Marine, and two in one person, a ward-room steward.

Diseases of the Organs of Respiration.—There was a reduction in the ratio of cases coming under this head, compared with the preceding year, equal to 137·4 per 1,000. There was also a slight reduction in the invaliding and death rates. The large reduction in the ratio of cases was almost altogether attributable to the absence of any epidemic of influenza such as prevailed in one or two vessels of the squadron in 1866. The reduction under the head of influenza and catarrh alone was equal to 115·9 per 1,000. The Clio, the Shearwater, the Topaze, and the Zealous were indeed the only vessels in which catarrhal affections were at all common. In the Clio they were frequent, and of more or less severity during the ship's stay at Valparaiso, and were said to have arisen from the cold nights that followed upon the warm temperature of the days. In the Shearwater they were chiefly prevalent in the Lady quarter of the year, when the vessel arrived at Vancouver's Island from Panama. The ship's company felt severely the transition from a tropical station to the cold climate of Esquimault. There were ninety-three cases of catarrh in the Topaze, the average duration of each case being between eleven and twelve days. They appeared to have been tolerably equally distributed over the different quarters of the year, but little or no information is given in connection with them. In the Zealous, in which there were fifty-nine cases of catarrh, the majority occurred during the Lady quarter of the year, when the vessel was on her voyage out to the station, and was passing from tropical to temperate and cold latitudes. There were no features of importance in connection with the cases of this affection in any of the vessels of the squadron.

A single death from inflammatory disease of the lungs occurred in the person of a Marine of the Clio, who had been long suffering from chronic bronchitis, the result of an acute attack he had previously had at Vancouver's Island. The disease assumed an exceedingly severe form on the

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passage of the vessel to Valparaiso, and on arrival at that port, rapid effusion took place in the chest, which carried him off in forty-eight hours.

Diseases of the Heart and Bloodvessels.—Fifty-five cases of various forms of disease coming under this head were entered on the sick-list, and of these fifteen were invalided, and three terminated fatally. Of thirty-two cases of functional or organic disease of the heart which were under treatment, fourteen were invalided. Excepting in one instance, no mention is made of any previous attack of rheumatism in these cases. In that instance the disease had a fatal termination: it occurred in the person of a seamen of the Malacca, who while sitting in his mess-place after dinner was suddenly seized with syncope. On recovering from this condition he complained of severe pain in the cardiac region, and between the shoulders, and he suffered from great dyspnœa and frequent cough, which induced vomiting; the face was congested and livid; the heart's action greatly excited, and the pulse at the wrist, small and intermittent, from 110 to 120. On examination of the chest, cardiac dulness was found to be very extensive, and the stethoscope revealed a loud systolic bruit, which was heard all over the chest. He was discharged to the Naval Hospital at Esquimault, where his symptoms increased in severity, orthopnœa became urgent, the pulse was very rapid, about 160 in the minute; the lower extremities became œdematous, and there was great infiltration of the scrotum and penis. He died on the 16th day after his first seizure. On post-mortem examination of the body, the heart was found to be greatly hypertrophied, weighing 2 lbs. 9 oz.; the left ventricle was hypertrophied, and the mitral valve thickened, and exhibiting two patches of earthy deposit. The aortic valves also were thickened; there was no disease on the right side of the heart; the lungs were congested, and there were numerous adhesions between the surfaces of the pleuræ

There were two deaths from aneurism of the aorta. One of these occurred in the person of a warrant officer of the Malacca, whose only complaint had been symptoms of dyspepsia, not of a severe character, and who was found dead in his bed. On examination of the body the cause of death was ascertained to have been the bursting of a small aneurism of the aorta within the pericardium. The latter membrane was found distended with blood, which had escaped through a small

a small rent in the sac of an aneurism of about the size of a pigeon's egg, situated in the front part of the aorta, immediately above the semilunar valves.

The other case proved fatal, not from bursting of the aneurismal sac, but from pressure of the tumour upon different vital parts. It occurred in the person of a leading seaman of the Zealous, who presented himself at the sick-bay on the morning of the 15th of May, complaining of pain, of ten days' duration, in the region of the heart, extending through between the shoulder-blades, and shortness of the breath on lying down at night, compelling him to sit up in bed. He looked pale and anæmic, and stated that he had lost flesh within the last eight months, but he had had no serious illness. There was no giddiness nor difficulty in swallowing, and the pupils were equal; there was no appearance of anxiety in the countenance, and the appetite was good. He stated also that he had continued to do all the duty of a leading seaman up to the time of the pain setting in. On examining the chest, the cardiac and pulmonary sounds appeared to be healthy, but there was a rough, though not loud, murmur attending the first sound, heard over the upper fourth of the sternum, and the right sterno-clavicular articulation, especially on exciting the heart's action. This was not heard at the lower part of the sternum. A thrill and visible pulsation were present in the right supra-clavicular region, and there was visible pulsation in the right axillary, brachial, and radial arteries. The pulse of the left wrist was very feeble compared with that of the right, and he complained of a fulness of the veins of the left arm; but there was no appreciable difference of temperature between the arms. On the 5th of June he complained, for the first time, of difficulty of swallowing, stating that solid food appeared to stick about the upper part of the sternum. There was no change in his other symptoms. The voice, which had become feeble, had again regained strength. On the 7th the difficulty in swallowing disappeared. On the 16th he complained more of cardiac pain, and on that evening, after making a little more exertion in moving about than usual, he was seized with a severe attack of difficulty of breathing—orthopnœa—with almost complete loss of voice, and stridulous respiration. The pupils were equal; the pulse at the right wrist weak, and jerking and thready; that of the left stronger than it had ever been before. From this time he could only sleep in the sitting posture, leaning forward, and the

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symptoms gradually increased in severity. On the day of his death (the 22nd of June), the following notes were made by the staff surgeon* of the ship, from whose detailed report the foregoing abridged history of the case has been made:—

"Passed an indifferent day yesterday, and at 8 last evening became much worse. A severe attack of orthopnœa came on, which obliged him to get out of bed and sit opposite an open port, holding on to a rope above his head with his hands, and thus assisting the muscles of the chest in the respiratory efforts. Pulse 110, small and weak. He was ordered a draught composed of sulphuric ether, aromatic spirits of ammonia, and solution of morphia, but it failed to produce any relief. The difficulty of breathing went on increasing, and he was obliged to stand erect gasping for breath before an open port. The breathing was very noisy and stridulous, and the face became very livid. He took at intervals a little brandy with water. At 3 a.m. he was obliged to sit down from sheer exhaustion, leaning forward and struggling to fill his chest. The urgency of the symptoms gradually increased, but he retained his consciousness till he breathed his last at 8. 10. a.m.

The appearances observed on post-mortem examination of the body in this distressing case are also furnished by the same officer:—

"Rigor mortis well marked. Chest only examined. Lungs slightly collapsed, congested and adherent to the pleuræ (though not firmly), especially on the left side. On raising the left lung a tumour was felt above and behind the left bronchus, firmly bound down by the pleuræ to the walls of the chest and the vertebral column opposite the 3rd, 4th, 5th and 6th vertebræ, as far as the angles of the ribs on the left side. The lungs, heart, part of the œsophagus, and trachea were removed. The tumour was carefully separated from the vertebræ and the ribs, and the bodies of the vertebræ from the third to the sixth were found deeply eroded, as well as the corresponding ribs as far as their angles. The tumour began about half-an-inch below the origin of the innominate artery, and extended to about the middle of the thoracic aorta. It exerted pressure on the trachea and left bronchus, and on the left pneumogastric, recurrent, and sympathetic nerves. There were some adhesions to and ecchymoses in the pericardium. The left ventricle was very contracted and empty; the right filled with pale adherent clots of blood, extending into the auricle and pulmonary artery. There was slight incapacity of the aortic valves, and a few spots of atheroma observable on them."

This man, singular to say, carried on his duties as a leading

* Staff Surgeon Matthew Burton, M.D.

leading seaman in the most efficient manner up to the day of his application for medical treatment, a remarkable fact, considering that disease must have existed, and been making progress for a lengthened period, and that the changes it was effecting were so likely to be accompanied by much suffering.

Diseases of the Alimentary Canal.—There was a considerable increase in the ratio of cases coming under this head, compared with the preceding year, and the invaliding rate was also higher. They did not, however, occasion any mortality. The increased ratio of cases was altogether attributable to the greater prevalence of diarrhœa in the squadron, but the disease itself was of no great severity, the average duration of each case on the sick-list being only between four and five days. In almost all the vessels the affection was attributed to sudden variations of temperature, or to dietetic errors.

Two men were invalided for diseases of the alimentary canal. One of these was a case of hæmatemesis dependent upon cirrhosis of the liver; the other was of a more obscure character, however, and was supposed to be dependent upon partial intus-susception. The case is thus reported by the acting surgeon of the Scout, in which vessel it occurred:—

"....ordinary seaman, on the 23rd of October, 1866, while engaged in the engine-room (being at that time a stoker) lifting a heavy copper pipe, sustained a partial oblique inguinal hernia of the left side, for which application was made within twelve hours after receipt of the injury, and which was at once reduced, and has never since reappeared. The rupture in this case must either have been imperfect, or was of such a nature as to admit of a spontaneous cure. Within a few days after reduction, the patient began to suffer from all the symptoms of strangulation, sickness and vomiting, twisting pain referred to the umbilicus, and obstinate constipation. At that time no tumour existed in the groin, nor was any impulse on coughing to be detected. These symptoms ultimately yielded to treatment, and he was discharged to duty on the 31st December of the same year. Since then, however, he has been repeatedly on the sick-list, complaining of similar symptoms to a greater or less degree, the most marked and constant being obstinate constipation, and from which he has never been entirely free. No tumour can now be detected in the groin, and the symptoms can only be accounted for by some partial invagination of the intestine, or obstruction due to some other constricting force, the result of the strain brought on the abdominal viscera at the time of the accident."

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Diseases of the Genito-Urinary Organs.—There was an increase in the ratio of cases and of invaliding coming under this head, compared with the preceding year, but there was no mortality from these diseases. Two hundred and seventy-eight cases of primary syphilis were under treatment in the squadron, which is in the ratio of 96·8 per 1,000, being an increase, compared with the preceding year, equal to 26·6 per 1,000. The total number of days' sickness occasioned by these cases was 11,465, which gives an average duration of nearly six weeks to each case. The average duration of each case of secondary syphilis, of which thirty-seven were under treatment, was about twenty-eight days. Reference has been made in former reports on the Health of the Navy* to the comparative immunity from venereal diseases enjoyed by Callao, as compared with Valparaiso, and to the advantages to be gained by selecting the former seaport as a fitting place for giving leave to the ships' companies of the vessels employed on the southern division of the station. It appears, however, that there is an objection to Callao on the score of its being infested by a body of men whose sole employment is to decoy seamen from their ships by offering them inducements to desert, which interferes very much with its being selected as a fitting place for giving men leave. The surgeon† of the Alert says :—

"The objection to Callao is comprised in one word—crimps; and so long as these are numerous, reckless, and lawless, beyond the control of, if not tacitly recognised by, the authorities, so long will Callao be avoided by captains who can do so. Talcahuano, a port 240 miles south of Valparaiso, much frequented by whalers, and visited by the Alert in 1864, is a desirable one to make. There are there, however, a special class of prostitutes attracted by the whalers, and a certain amount of venereal disease, as drawbacks. Coquimbo (La Serena, from the beauty of its atmosphere), 200 miles north of Valparaiso, has been strongly recommended by Commodore Harvey of the Leander (who knows the coasts of Chili and Peru better than any other naval officer) as a fine harbour, and the best place, in his opinion, for the head quarters of the southern division. It is perhaps presumptuous in me to corroborate the opinions of Commodore Harvey. Coquimbo is preferable to Callao in every respect. It is at present free from venereal disease and from crimps."

There is little to be said in connection with the prevalence of syphilis on this station that has not been remarked upon in

* Statistical Report of the Health of the Navy for the Year 1864, pp. 158, 159.

† Surgeon F. W. Davis.

in previous Statistical Reports of the Health of the Navy. Valparaiso continues to be the seaport most infested by the disease, and until the authorities take some steps to protect our seamen, it would be well that general leave should as seldom as possible be granted there.

Rheumatism.—There was a trifling reduction in the ratio of cases of rheumatism compared with the preceding year, but the invaliding rate was higher. Two hundred and ninety-four cases altogether were under treatment, being in the ratio of 102·4 per 1,000 of mean force. The average ratio of cases of rheumatism on the station taken for a period of eleven years was 105·6 per 1000.

Wounds and Injuries.—Two men were killed by falling from aloft; one sustained fatal fracture of the skull, and the other fracture of the ribs and pelvis.

Seven deaths were occasioned by drowning. Of these, two men fell overboard; one was washed overboard; one was capsized in a boat; one was drowned while bathing; one is supposed to have fallen from a pier and been drowned; and one fell from off a bridge when drunk.

A man in a fit of insanity committed suicide by jumping overboard.

The total number of deaths was twenty-five, being in the ratio of 8·7 per 1,000 of mean force, which is precisely the same death-rate as in the previous year. The ratio of mortality from disease alone was only 5·2 per 1,000.

Invalided.—Five persons were invalided for diseases of the brain and nervous system; fourteen for diseases of the organs of respiration; fifteen for diseases of the heart and blood-vessels; four for diseases of the alimentary canal; one for disease of the liver; fifteen for diseases of the genito-urinary organs, almost all of venereal origin; twenty for rheumatism; one for diseases of the bones and joints; six for diseases of the skin and cellular tissue; eight for unclassed diseases; four for wounds and injuries of various kinds; and five for hernia. The total number invalided was ninety-eight, which is in the ratio of 34·1 per 1,000 of mean force, being an increase, compared with the preceding year, equal to 1·1 per 1,000.

TABLE, No. 1.

SHOWING the Number of CASES of all DISEASES and INJURIES, and the Number INVALIDED and DEAD, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Continued and Remittent Fever	368	128·2	—	—	—	—
Yellow Fever	5	1·7	—	—	5	1·7
Intermittent Fever	88	30·6	—	—	—	—
Small-pox	6	2·	—	—	—	—
Disease of the Brain	1	·3	—	—	—	—
Apoplexy	1	·3	—	—	1	·3
Epilepsy	9	3·1	1	·3	—	—
Paralysis	8	2·7	—	—	—	—
Insanity	9	3·1	3	1·	—	—
Delirium Tremens	4	1·3	—	—	—	—
Neuralgia	8	2·7	1	·3	—	—
Vertigo	5	1·7	—	—	—	—
Insolation	5	1·7	—	—	—	—
Inflammation of the Lungs and Pleura	22	7·6	—	—	1	·3
Phthisis and Hæmoptysis	21	7·3	12	4·1	4	1·3
Influenza and Catarrh	388	135·1	2	·6	—	—
Cynanche	116	40·4	—	—	—	—
Asthma	6	2·	—	—	—	—
Disease of the Heart, Functional and Organic	32	11·1	14	4·8	1	·3
Hæmorrhoids	14	4·8	—	—	—	—
Varix	6	2·	—	—	—	—
Aneurism	3	1·	1	·3	2	·6
Disease of the Stomach and Bowels	7	2·4	2	·6	—	—
Dysentery	18	6·2	1	·3	—	—
Diarrhœa	317	110·4	1	·3	—	—
Constipation and Colic	54	18·8	—	—	—	—
Disease of the Liver	13	4·5	1	·3	—	—
Jaundice	3	1·	—	—	—	—

TABLE, No. 1.—Showing the Number of Cases of all Diseases, &c.—*continued.*

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	7	2·4	1	·3	—	—
Syphilis, Primary	278	96·8	7	2·4	—	—
Syphilis, Secondary	37	12·8	3	1·	—	—
Gonorrhœa	80	27·8	—	—	—	—
Orchitis	62	21·6	3	1·	—	—
Stricture	10	3·4	—	—	—	—
Incontinence of Urine, &c	1	·3	1	·3	—	—
Rheumatism	294	102·4	20	6·9	—	—
Gout	7	2·4	—	—	—	—
Disease of the Bones and Joints	24	8·3	1	·3	—	—
Inflammation of the Eyes	37	12·8	—	—	—	—
Otitis and Deafness	10	3·4	—	—	—	—
Erysipelas	1	·3	—	—	—	—
Bubo (*Symp.*)	44	15·3	—	—	—	—
Phlegmon and Abscess	1,030	358·8	1	·3	—	—
Ulcer	354	123·3	3	1·	—	—
Psora	9	3·1	—	—	—	—
Eruptions, &c.	60	20·9	2	·6	—	—
Dyspepsia and Debility	183	63·7	6	2·	1	·3
Dropsy	4	1·3	1	·3	—	—
Worms	4	1·3	1	·3	—	—
Headache	15	5·2	—	—	—	—
Gangrene	1	·3	—	—	—	—
Wounds and Injuries	825	287·4	4	1·3	2	·6
Burns and Scalds	33	11·4	—	—	—	—
Hernia	7	2·4	5	1·7	—	—
Drowned	-	-	-	-	7	2·4
Submersion	1	·3	—	—	—	—
Suicide	-	-	-	-	1	·3
TOTAL	4,955	1726·4	98	34·1	25	8·7

TABLE, No. 2.

SHOWING the Number of DAYS' SICKNESS from each DISEASE and from INJURIES, the Average Number of Men Sick Daily, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Continued and Remittent Fever	3,856	589	4,445	12·1	4·2
Yellow Fever	22	-	22	—	—
Intermittent Fever	621	89	710	1·9	·6
Small-pox	140	8	148	·4	·1
Disease of the Brain	1	22	23	—	—
Epilepsy	147	5	152	·4	·1
Paralysis	277	-	277	·7	·2
Insanity	228	15	243	·6	·2
Delirium Tremens	19	13	32	—	—
Neuralgia	36	-	36	—	—
Vertigo	52	-	52	·1	—
Insolation	71	-	71	·1	—
Inflammation of the Lungs and Pleura	646	77	723	1·9	·6
Phthisis and Hæmoptysis	427	579	1,006	2·7	·9
Influenza and Catarrh	2,803	12	2,815	7·7	2·6
Cynanche	858	172	1,030	2·8	·9
Asthma	23	-	23	—	—
Disease of the Heart, Functional and Organic	1,048	353	1,401	3·8	1·3
Hæmorrhoids	220	-	220	·6	·2
Varix	57	56	113	·3	·1
Aneurism	41	38	79	·2	—
Disease of the Stomach and Bowels	232	-	232	·6	·2
Dysentery	295	198	493	1·3	·4
Diarrhœa	1,444	57	1,501	4·1	1·4
Constipation and Colic	231	157	388	1·	·3
Disease of the Liver	101	178	279	·7	·2
Jaundice	93	16	109	·2	—

TABLE, No. 2.—Showing the Number of Days' Sickness from each Disease, &c.—*cont^d.*

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	163	110	273	·7	·2
Syphilis, Primary	7,465	4,000	11,465	31·4	10·9
Syphilis, Secondary	954	88	1,042	2·8	·9
Gonorrhœa	1,782	167	1,949	5·3	1·8
Orchitis	1,257	305	1,562	4·2	1·4
Stricture	166	217	383	1·	·3
Incontinence of Urine, &c.	17	-	17	—	—
Rheumatism	4,455	639	5,094	13·9	4·8
Gout	61	-	61	·1	—
Disease of the Bones and Joints	665	20	685	1·8	·6
Inflammation of the Eyes	318	268	586	1·6	·5
Otitis and Deafness	86	-	86	·2	—
Erysipelas	5	-	5	—	—
Bubo (*Symp.*)	964	245	1,209	3·3	1·1
Phlegmon and Abscess	9,083	553	9,636	26·4	9·1
Ulcer	7,450	1,186	8,636	23·6	8·2
Psora	100	-	100	·2	—
Eruptions, &c.	894	260	1,154	3·1	1·
Dyspepsia and Debility	1,268	428	1,696	4·6	1·6
Dropsy	26	205	231	·6	·2
Worms	17	-	17	—	—
Headache	159	7	166	·4	·1
Gangrene	18	28	46	·1	—
Wounds and Injuries	9,211	530	9,741	26·6	9·2
Burns and Scalds	333	58	391	1·	·3
Hernia	512	-	512	1·4	·4
Submersion	4	-	4	—	—
TOTAL	61,422	11,948	73,370	201·	70·

TABLE, No. 3.

SHOWING the Number of MEN INVALIDED in each Ship Employed on the PACIFIC STATION.

CAUSE of INVALIDING.	Alert.	Clio.	Columbine.	Malacca.	Mutine.	Nereus.	Reindeer.	Scout.	Sparrowhawk.	Topaze.	Zealous.	TOTAL.
Insanity	–	1	–	–	–	–	–	–	–	1	1	3
Epilepsy	–	1	–	–	–	–	–	–	–	–	–	1
Neuralgia	–	–	–	–	–	–	1	–	–	–	–	1
Phthisis and Hæmoptysis	–	–	–	2	1	–	1	3	–	–	5	12
Catarrh	–	–	–	–	–	–	–	–	–	2	–	2
Disease of the Heart, Functional and Organic	1	3	–	1	4	–	–	2	1	–	a2	14
Aneurism	–	–	–	–	–	–	–	1	–	–	–	1
Inflammation of the Stomach and Bowels	–	1	–	–	–	–	–	1	–	–	–	2
Dysentery	–	–	–	–	–	–	–	–	–	1	–	1
Diarrhœa	–	–	–	–	–	–	–	–	–	1	–	1
Disease of the Liver	1	–	–	–	–	–	–	–	–	–	–	1
Inflammation of the Kidneys and Bladder	–	–	–	–	–	–	–	–	1	–	–	1
Syphilis, Primary	–	–	–	–	1	–	–	–	–	6	1	7
Syphilis, Secondary	–	–	1	–	–	–	–	1	–	–	–	3
Orchitis	–	1	–	–	–	–	–	1	–	1	–	3
Incontinence of Urine, &c.	–	–	–	–	–	1	–	–	–	–	–	1
Rheumatism	–	2	–	3	3	1	3	1	–	3	4	20
Diseases of the Bones and Joints	–	1	–	–	–	–	–	–	–	–	–	1
Abscess	–	–	–	–	–	–	–	–	–	1	–	1
Ulcer	–	–	–	–	–	–	1	–	1	–	1	3
Eruptions, &c.	–	–	–	–	–	–	–	–	–	1	1	2
Dyspepsia and Debility	1	1	–	–	–	–	1	2	–	–	1	6
Dropsy	–	–	–	1	–	–	–	–	–	–	–	1
Worms	–	–	–	–	–	–	–	–	–	–	1	1
Wounds	–	–	–	1	–	–	1	1	–	–	–	4
Hernia	1	1	–	1	–	–	1	–	–	1	1	5
TOTAL	4	12	1	9	9	2	9	13	3	18	18	98

a 1 In Gunboat Forward.

TABLE, No. 4.

SHOWING the Number of DEATHS in each Ship employed on the PACIFIC STATION.

CAUSE OF DEATH.	Alert.	Clio.	Malacca.	Nereus.	Reindeer.	Scout.	Sparrowhawk.	Topaze.	Zealous.	TOTAL.
Yellow Fever	–	–	–	–	–	5	–	–	–	5
Apoplexy	–	–	1	–	–	–	–	–	–	1
Inflammation of Lungs and Pleura	–	1	–	–	–	–	–	–	–	1
Phthisis	–	–	–	1	–	1	–	2	–	4
Disease of the Heart	–	–	1	–	–	–	–	–	–	1
Aneurism	–	–	1	–	–	–	–	–	1	2
Syphilitic Cachexia	–	1	–	–	–	–	–	–	–	1
Wounds and Injuries	–	–	–	–	–	–	–	–	2	2
Drowned	1	–	1	–	1	1	1	–	2	7
Suicide	–	–	–	–	1	–	–	–	–	1
TOTAL	1	2	4	1	2	7	1	2	5	25

TABLE, No. 5.

SHOWING the Names of the Ships; the Average Complements, &c.; the Number of Cases; the Total Number of Days' Sickness on Board; the Average Number of Men Sick Daily, in each Ship, and the Number discharged to Hospital.

Rate, &c.	NAMES of SHIPS.	Where Commissioned.	When Commissioned.	Number of Guns.	Tonnage.	Horse Power.	Period.	Average Complements.	Average Complements corrected for Time.	Number of Cases of Disease and Injury.	Number of Days' Sickness on Board.	Average Number of Men Sick Daily for Twelve Months.	Ratio per 1,000 of Average Force of each Ship.	Number Discharged to Hospital.
Armour-plated Ship.	Zealous	Devonport	18 Sept. 1866	20	3,716	S. 800	Year	575	575	773	8,399	23·	40·	26
Fourth Rate	Sutlej	Portsmouth	20 Sept. 1862	35	3,066	S. 500	1 Jan. to 31 Mar.	510	130	153	1,729	4·7	36·1	-
	Topaze	Devonport	26 Jan. 1866	31	2,659	S. 600	Year	450	450	863	13,701	37·5	83·3	48
Sixth Rate	Clio	Sheerness	6 July 1864	22	1,472	S. 400	Year	265	265	646	9,864	27·	101·8	50
	Malacca	Portsmouth	13 Nov. 1865	13	1,034	S. 200	Year	220	220	345	3,707	10·1	45·9	13
	Scout	Sheerness	17 May 1865	21	1,462	S. 400	Year	260	260	533	4,506	12·3	47·3	11
Sloop	Alert	Devonport	14 May 1863	17	751	S. 100	Year	170	170	188	1,788	4·8	28·2	7
	Cameleon	Sheerness	7 May 1867	7	952	S. 200	1 Oct. to 31 Dec.	175	45	94	958	2·6	57·7	3
	Chanticleer	Woolwich	4 April 1867	7	950	S. 200	1 Oct. to 31 Dec.	185	45	64	922	2·5	55·5	1
	Columbine	Sheerness	13 May 1863	4	672	S. 150	Year	115	115	213	2,189	5·9	51·3	11
	Mutine	Woolwich	7 April 1865	17	882	S. 200	Year	155	155	242	3,927	10·7	69·	5
	Reindeer	Chatham	30 Oct. 1866	7	953	S. 200	Year	185	185	468	5,199	14·2	76·7	2
	Shearwater	Devonport	13 Dec. 1862	4	669	S. 150	1 Jan. to 30 Sept.	115	90	176	1,801	4·9	54·4	1
Gun Vessel	Sparrowhawk	Portsmouth	9 March 1865	4	676	S. 200	Year	75	75	121	1,710	4·6	61·3	6
Store Ship	Nereus	Devonport	15 Nov. 1843	6	1,094	-	Year	40	40	55	764	2·	50·	3
Marine Detachment, San Juan				-	-	-	Year	50	50	21	304	·8	16·	-

TABLE, No. 6.

SHOWING the Number of CASES of all DISEASES and INJURIES in each Ship employed on the PACIFIC STATION.

DISEASE OR INJURY.	Alert.	Cameleon.	Chanticleer.	Clio.	Columbine.	Malacca.	Marines, San Juan.	Mutine.	Nereus.	Reindeer.	Scout.	Shearwater.	Sparrowhawk.	Sutlej.	Topaze.	Zealous.	TOTAL.
Continued and Remittent Fever	18	12	–	170	2	1	1	18	–	5	75	2	1	–	56	7	368
Yellow Fever	–	–	–	–	–	–	–	–	–	–	5	–	–	–	–	–	5
Intermittent Fever	24	1	–	9	2	–	–	1	–	43	–	6	1	–	1	–	88
Small-pox	–	–	–	–	–	–	–	–	–	6	–	–	–	–	–	–	6
Disease of the Brain	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1
Apoplexy	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1
Epilepsy	1	–	–	2	–	1	–	–	–	3	1	–	–	–	–	1	9
Paralysis	2	–	–	–	–	–	–	1	–	1	–	–	–	–	1	3	8
Insanity	2	–	–	2	1	1	–	–	–	1	–	–	–	–	1	1	9
Delirium Tremens	2	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1	4
Neuralgia	–	–	–	–	1	–	–	1	–	2	1	1	–	–	–	2	8
Insolation	–	–	–	–	–	–	–	1	–	1	–	–	–	1	2	–	5
Vertigo	1	–	–	–	–	–	–	–	–	–	3	1	–	–	–	–	5
Inflammation of the Lungs and Pleura	1	–	1	5	–	–	–	–	1	–	–	–	2	6	1	5	22
Phthisis and Hæmoptysis	–	–	1	1	–	2	–	1	1	2	3	–	–	2	2	6	21
Influenza and Catarrh	13	1	2	47	25	25	–	13	6	29	14	49	3	9	93	59	388
Cynanche	4	1	–	6	5	3	–	4	–	2	24	1	3	6	25	27	116
Asthma	5	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	6
Disease of the Heart, Functional and Organic	1	–	–	4	–	*c* 5	–	6	–	2	3	2	2	4	2	1	32
Aneurism	–	–	–	–	–	1	–	–	–	–	–	–	1	–	–	1	3
Hæmorrhoids	1	–	–	1	1	–	–	–	–	2	3	–	2	–	4	–	14
Varix	–	–	–	1	–	–	1	2	–	–	2	–	–	–	–	–	6
Inflammation of the Stomach and Bowels	–	–	–	*a* 3	–	1	–	–	–	–	2	–	1	–	–	–	7
Dysentery	1	–	4	3	–	–	–	–	–	6	–	–	2	1	1	–	18
Diarrhœa	3	8	15	13	10	31	1	20	6	49	47	2	14	17	53	28	317
Constipation and Colic	5	1	5	2	3	4	1	1	2	8	3	–	–	1	4	14	54
Inflammation of the Liver	–	–	–	–	–	1	–	–	1	–	11	–	–	–	–	–	13
Jaundice	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	2	3
Inflammation of the Bladder and Kidneys	–	–	–	1	–	–	–	–	1	2	1	1	1	–	–	–	7
Syphilis, Primary	9	11	5	47	11	5	3	9	13	2	2	13	5	1	118	24	278
Syphilis, Secondary	4	–	1	2	3	5	–	–	–	3	2	–	8	4	–	5	37
Gonorrhœa	3	4	2	17	7	4	–	5	3	1	–	–	3	–	17	14	80
Orchitis	–	–	1	14	1	4	–	1	–	1	2	1	6	2	15	14	62
Stricture of the Urethra	–	–	–	2	–	1	–	–	–	1	1	–	1	–	1	3	10
Incontinence of Urine, &c.	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	1
Rheumatism	7	6	3	30	10	16	1	30	3	34	22	16	28	13	44	31	294
Gout	3	–	–	2	–	–	–	–	–	–	–	–	–	–	–	2	7
Disease of the Bones and Joints	–	–	–	11	–	–	–	–	1	–	1	–	–	–	5	6	24
Inflammation of the Eyes	2	–	1	1	4	–	1	3	–	4	7	1	–	3	7	3	37
Otitis and Deafness	–	–	–	1	–	4	–	1	–	–	2	–	–	–	–	2	10
Erysipelas	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1
Bubo (*Symp.*)	3	–	2	11	2	–	–	–	–	5	5	2	2	1	8	3	44
Phlegmon and Abscess	21	16	11	*b* 66	64	*d* 96	2	60	11	128	152	16	14	34	166	173	1,030
Ulcer	15	10	3	54	9	26	–	6	–	25	27	13	1	19	71	75	354
Psora	–	1	–	–	–	1	–	1	–	4	–	–	–	1	–	1	9
Eruptions, &c.	–	–	1	4	1	8	1	3	–	11	7	1	1	–	9	13	60
Dyspepsia and Debility	10	3	4	22	8	19	–	4	1	13	26	12	4	9	13	35	183
Headache, &c.	–	5	–	–	–	–	–	1	–	–	1	–	1	–	2	5	15
Dropsy	–	–	–	1	–	*e* 1	–	*e* 1	–	–	*e* 1	–	–	–	–	–	4
Worms	2	–	–	–	–	–	–	–	–	–	*f* 1	–	–	–	–	1	4
Gangrene	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
Wounds and Injuries	23	13	2	85	40	71	8	43	4	69	75	34	13	16	135	194	825
Burns and Scalds	–	1	–	2	2	1	1	3	–	2	1	2	1	2	5	10	33
Hernia	2	–	–	–	1	1	–	1	–	1	–	–	–	–	1	–	7
Submersion	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1
TOTAL	188	94	64	646	213	345	21	242	55	468	533	176	121	153	863	773	4,955

a 2 Hæmatemesis; 1 Peritonitis. *b* 2 Fistula in Ano. *c* 1 Atheroma. *d* 1 Fistula in Ano.
e Œdema. *f* Tænia.

WEST COAST OF AFRICA STATION.

West Coast of Africa Station.

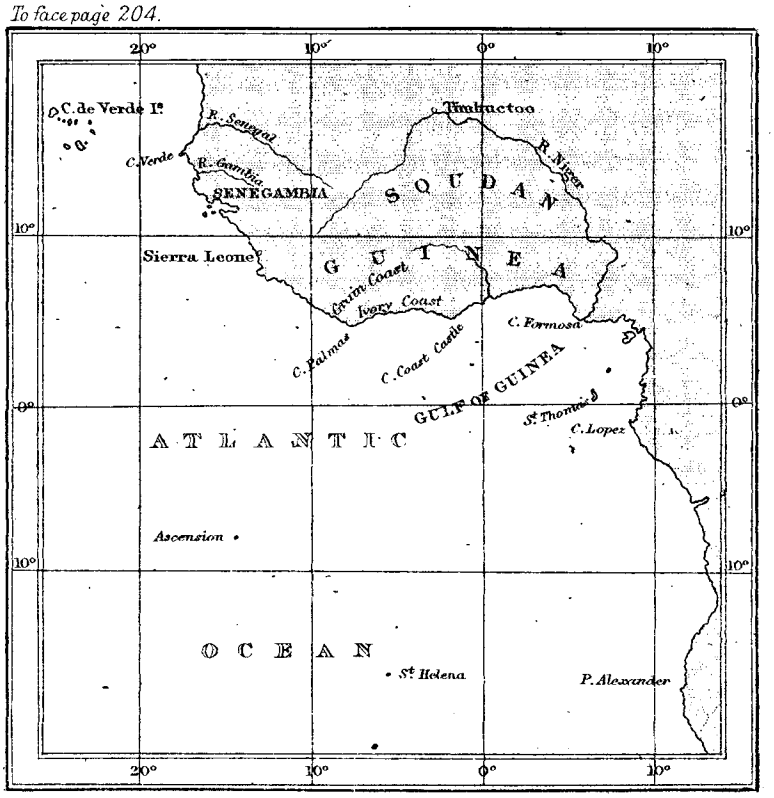
THE squadron on the West Coast of Africa in 1867, comprised twenty-two vessels, viz., one of the fourth-rate; one of the sixth-rate; two sloops; eleven gun-vessels; four steam-vessels; and three store-ships, one of which was permanently stationed off Ascension, and another off Jella Coffee. The returns from twelve of the vessels are for the whole year, and from the remainder for periods varying from three to nine months. The mean force corrected for time was 1,840, but in consequence of the defective character of the returns from some of the vessels, a reduction requires to be made in estimating the ratio of cases, and for this purpose the force is taken as 1,720. The total mean force, however, is taken in calculating the ratios of invaliding and mortality, the returns under those heads being complete. The total number of cases entered on the sick-list was 3,809, which is in the ratio of 2214·5 per 1,000 of mean force, being an increase, compared with the preceding year, equal to 146·7 per 1,000. Of these, 153 were invalided, and fifty died, the former being in the ratio of 83·1, and the latter of 27·1 per 1,000. Both these ratios are in excess of those of the previous year.

The daily loss of service from fevers, including the exanthemata, was equal to nearly twenty-two men, or in the ratio of 11·6 per 1,000 of mean force; the average daily sick-rate from diseases of the brain and nervous system was ·2 per 1,000; from diseases of the organs of respiration, 4·4; of the heart and bloodvessels, 1·6; of the alimentary canal, 2·5; of the liver, ·3; of the genito-urinary organs, 4·8; from rheumatism, 4·1; gout, ·1; diseases of the bones and joints, ·3; of the special senses, ·9; of the skin and cellular tissue, 23·4; from diseases not classed, 3·6; and from wounds and injuries of various kinds, and hernia, 12·3. The average number of men daily sick was 134·9, which is in the ratio of 73·3 per 1,000, being very nearly the same sick-rate as in the preceding year.

Fevers.—

WEST COAST OF AFRICA STATION.

To face page 204.



Fevers.—There were 525 cases of continued and remittent fever; two cases of yellow fever; forty-seven of ague; twenty-three of small-pox; and one of scarlatina, under treatment during the year; and of these, twenty-four of primary fever, and four of ague, were invalided; and eight of primary fever, two of yellow fever, one of ague, and two of small-pox had a fatal termination. The average duration of each case of primary fever, on board ship and in hospital, was about thirteen days; of each case of yellow fever, between fifteen and sixteen days; of each case of ague, between eleven and twelve days; of each case of small-pox, between twenty-seven and twenty-eight days; and the case of scarlatina was twelve days under treatment.

Continued and Remittent Fever.—There were sixteen cases of primary fever in the Antelope, eleven of which occurred in the Lady quarter of the year, when the vessel was employed in the Congo, and in an attack upon natives at Manque Grande. The medical officer * attributes these cases to exposure in the Congo, and chiefly to visits to Banana Creek. He says:—

"The fever of this period was of character precisely similar to that we experienced in the Bights last year; viz., ordinary remittent, without any of its more severe or dangerous symptoms, excepting in one case, in which there was considerable gastric irritability allayed by hydrocyanic acid; in a second and third, some threatening of affection of the head for a day or two; and in a fourth, complication with delirium tremens. In all, the commencement was insidious, the first attack of the fever being slight, sometimes barely perceptible, the fever very high on the second day, remissions one to four in the twenty-four hours, the duration two and four days. In one there was no remission for upwards of thirty hours. In all, lime-juice was freely used as a drink; only when the stomach was irritable, were sudorific or febrifuge drugs employed, and then only in the shape of effervescing draughts of citrate of magnesia or potash, and I believe with no sufficient beneficial effect to warrant a more general use. In all, the bowels were first opened with sulphate of magnesia, or pills of scammony and calomel, and, after that, quinine given in one twenty-grain dose to commence with. If, after four hours, no cinchonism appeared, five grains more were given; thenceforth, to the appearance of cinchonism, three doses daily of five to ten grains, according as seemed necessary. In a few, no cinchonism was produced; in some it was delayed to nearly two days; in most, it came on in less than twelve hours. After the appearance of the least suspicion of cinchonism,

* Assistant Surgeon J. S. Levis, M.D.

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cinchonism, the quinine was reduced to three grains twice or thrice daily, and when the pulse fell off in strength, wine was given in quantities of four to eight ounces per diem. As soon as possible the appetite was tempted with essence of beef or chicken broth. It usually required some days for the tongue to clean, and the appetite to begin to establish itself. Once fairly under weigh, however, they fed ravenously. It took two or three weeks to enable them, with any safety, to undertake the trying duties of this ship at the time. All during their convalescence, and afterwards when at duty, presented a more or less spanæmic appearance. To a few I gave some sesquichloride or ammonio-citrate of iron. None were allowed to discontinue the quinine until the health seemed fairly re-established."

In the Assurance there were fifty-nine cases of primary fever. Of these five are classed as remittent, and fifty-four as febricula. The majority of the cases occurred in the Michaelmas quarter of the year, and were attributed to exposure at St. Paul de Loando, and while cruising in the River Congo. The medical officer* says:—

"A few cases which occurred in Kroomen were traced to cold, in consequence of sleeping on the upper deck without blankets. These men had sold the blankets with which they had been provided a short time previously. One Krooman who had been away on boat cruising duty without his blanket was seized with fever of a very severe type, complicated with pleuro-pneumonia. This man has completely recovered, but after a tedious illness. Many of the cases of febricula occurred in persons who had suffered, more or less, from fever in the Mediterranean, and some of these presented a very cachectic appearance, the fever, in a few instances, recurring again and again. In two cases tenderness over the region of the liver was observed. Irritability of the stomach and diarrhœa very commonly ushered in the attack.

"The treatment of these cases consisted chiefly in a calomel purgative, followed by small doses of quinine, and just enough sulphate of magnesia to keep the bowels gently open for the first day or two; afterwards, five grains of quinine three times a day. If the fever did not soon show symptoms of subsiding, a twenty-grain dose of quinine generally served to arrest it. In a few cases a second dose was given, but in no case was it necessary to give it a third time. During convalescence, the bitter infusions with the mineral acids were found very useful. The other symptoms were treated on general principles."

A case of fever complicated with jaundice, which occurred in this vessel in the person of an officer, is returned as yellow fever. Although some of the symptoms in the latter stages of the disease assumed somewhat suspicious characters, there appears

* Assistant Surgeon Constantine Keenan.

appears to be little doubt that the fever was not of the specific yellow type.

There were thirty-five cases of primary fever in the Bristol, fifteen of which are classed as remittent, and the remainder as febricula. The vessel arrived on the station from England in March, and these cases were distributed tolerably equally over the Midsummer, Michaelmas, and Christmas quarters of the year. As a rule, they do not appear to have been of much severity; but very little information, however, is given respecting them.

There were twenty-five cases of primary fever in the Dart, sixteen of which were classed as remittent, and nine as febricula. Some of these cases appear to have been of considerable severity. One proved fatal, and in two instances the persons affected were invalided for the sequelæ of the disease. In consequence of the sickness and invaliding of the medical officer of this ship, and the changes thereby occasioned, but little information is given in connection with its medical history. In the Lady quarter of the year, when eight cases of remittent fever occurred, the vessel was at Sierra Leone, and subsequently at Lagos. The average duration of each of these cases was about fifteen days. They were the most severe that occurred during the year, and it was from this number that two were invalided and one proved fatal. The fatal case occurred in the person of an officer, who, in a paroxysm of the disease, jumped overboard, and was drowned.

There were nineteen cases of primary fever in the Dromedary, nine being of the remittent type, and ten febricula. They were for the most part of a trivial character, and were occasioned by exposure at different parts of the coast and in the rivers, where the vessel was employed provisioning the squadron. Excepting in one instance—that of an officer who had had two very severe attacks of fever, followed by great emaciation and debiltiy, for which he was subsequently invalided—the cases yielded readily to the treatment to which they were subjected.

There were twenty-two cases of primary fever in the Espoir. Fifteen of these are classed as remittent, and seven as febricula, almost all of which occurred during the Lady

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quarter of the year. The medical officer,* with reference to that period, says :—

"The fourteen cases of remittent fever resulted from exposures in Banana Creek, River Congo. While the vessel lay in the creek, from the 12th to the 16th of January, quinine was not issued to the whole of the ship's company, but to such only as were much exposed in night boat duty. From the 4th to the 10th of February, after our second visit to the creek, I gave each person in the ship three grains of quinine in quarter of a gill of rum every evening. In my Journal for last year, I attributed the greater number of the febrile cases to exposure in the Banana Creek, and my further experience confirms me in the opinion that it is one of the most unhealthy places in the River Congo for a vessel to anchor, even for a night. Vessels go into the creek to coal, and rarely come out the same day; very often they remain for three or four days, during which the men are more than usually exposed to the sun, cleaning boats on the beach, washing decks, canvas, gear, clothes, &c., and not unfrequently, at least in this ship, the deck in the evening is wet, and, should the men have been coaling late, they lie down, and sleep about the upper deck or below, in their coaling suits, as best they can. I understand there has been a good deal of sickness in the merchant vessels in the creek. The crews are generally German or Dutch, sometimes English, and are fresh from Rotterdam or England, and therefore very susceptible to malarial influences, and many of them being plethoric, suffer from smart febrile attacks. There have been from twenty to thirty cases of fever in the crews of the merchant vessels within the last two or three months. The Pioneer has had, for her small European ship's company, a high sick-rate from fever, and one death. The assistant surgeon of her had a smart attack of remittent fever. He states that he had had three cases of typhus fever among the Europeans at Banana, but as typhus is extremely rare on the coast, perhaps there may have been a mistake in the diagnosis. I did not see any of the cases, and therefore cannot offer an opinion. The Europeans of the Dutch factory at Banana report this a very unhealthy year in the Congo."

There were only two trifling cases of primary fever of an ephemeral type in the Flora, the store ship permanently stationed off Ascension.

There were forty-four cases of primary fever in the Greyhound, seven of which are classed as continued, seven as remittent, and the remainder as febricula. They were tolerably equally distributed over the various quarters of the year. During the Midsummer quarter some cases of considerable

* Assistant Surgeon John Lambert.

siderable severity occurred. The surgeon* says of this period:— West Coast of Africa Station.

"There were fourteen cases of fever entered on the sick-list during the quarter. Nine of these were slight cases of febricula, the average duration of each on the sick-list being four days; the other five were cases of remittent fever, three of which were serious, one severe, and one slight. Two of these occurred in the persons of gun-room officers who had been on shore at Lagos, and slept on board Her Majesty's ship Investigator; they had walked a good deal in the sun. One of these is mentioned as being slight, the officer being discharged to duty in ten days; the other was a severe case, and remained on the list sixteen days. The chief symptoms were headache, pain in the back and limbs, with nausea, quick pulse, and furred tongue. The three serious cases of remittent fever occurred in the persons of two seamen and a boy. None of them had been out of the ship, and in all the symptoms differed somewhat. The boy was placed on the list on the 26th of May, complaining of rigors and headache. He had a drowsy, depressed look, and soon after he was placed in his hammock he fell into a profound stupor from which he could not be roused, but he was able to ask for a glass of water, and to tell when he wished to pass his urine, or go to stool. His pulse was quick and rather full; there was a peculiar twitching about the muscles of the mouth and upper extremities, and he moaned frequently as if in great pain. He had some opening medicine given him, and afterwards took a diaphoretic mixture, and subsequently calomel and opium until his mouth became affected; a blister was also applied to the nape of the neck. He continued in the same state for two days, and then gradually became conscious, but remained stupid and indifferent for two days more; he improved steadily, however. On leaving his cot he had great weakness of the lower extremities. He was sent to duty after thirty-five days' sickness. This boy, in the previous quarter, had suffered, during an epidemic of influenza, from peculiar head symptoms, and at this time the symptoms were almost similar. From his own statement it would appear that in the interval between these attacks, he had several slight seizures of the same nature, viz., rigors, followed by sleepiness, but lasting only for a short time. The next person, an ordinary seaman, was placed on the list on account of pain in one of his knees, without swelling; he had also sore throat. The pain afterwards extended to his legs and arms, and over the body, with fever and headache. He continued on the list for about a week, having gradually improved, when he again became very feverish, and complained of pain in the left side of the chest, and in the abdomen along the course of the descending colon, and also in the joints of the extremities, which, as before, were not swollen. An abscess also formed in the left buttock, but this healed up on being opened, and about an ounce of pus discharged. He subsequently passed

* Surgeon Alexander Collins, M.D.

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passed several dysenteric stools, and being of a weakly constitution, I judged it better to send him to hospital. He was treated by purgatives, diaphoretics, and counter-irritation. The third person attacked, also an ordinary seaman, was entered on the sick-list on the 20th of June, complaining of aching pains in the limbs, and pain in the epigastric region; the tongue was covered with a creamy fur. A sinapism was applied to the epigastrium, and he was placed in a hammock, and ordered effervescing drinks. Next day he felt rather easier, and the skin was not so hot, but he still complained of the epigastric pain, for which a blister was applied, and a saline and antimonial mixture prescribed. The pain became relieved, but the febrile symptoms gradually increased, and he became comatose. The fever assumed the remittent type. He passed through a dangerous period of illness, but ultimately was discharged to duty having been nearly forty days under treatment. I believe the cause of these cases of fever to have been the change from the hot to the cold season in the Bights, and the fall of temperature on our proceeding south."

On all occasions on which the ship's company of the Greyhound were exposed to malarial influence, quinine was employed as a prophylactic, and testimony is borne to the benefits derived from it.

There were forty-eight cases of primary fever, all of the remittent type, in the Investigator, and of these, four proved fatal. Twenty-four of the cases and two of the deaths occurred in the Michaelmas quarter of the year, when the vessel was employed in an expedition up the River Niger, during which she unhappily got aground opposite some hostile villages in the unhealthiest part of the Delta, and the crew were for five days subjected to the greatest exposure in attempting to float the ship, besides being under the fire of the natives. During all this time not a single case of sickness occurred, and the fever did not make its appearance until the third day after the vessel was afloat. The medical officer* in charge at this time, says:—

". . . . Whether owing to anxiety or exertion, I am happy to say that not a single case of sickness occurred during the time the vessel was aground; but on the third day after getting afloat fever of a very aggravated nature began to manifest itself. The symptoms resembled the blood-poisoning resulting from low typhoid fever; lumbar pains I observed to be quite characteristic; great depression of mental and physical powers; considerable nervousness; and perfect indifference as to recovery. The entire system appeared as if imbued with a poison of semi-narcotic power, the patients after the first

* Assistant Surgeon J. E. Saunderson, M.D., B.A.

first day or two scarcely making any complaint, but gradually sinking into a weak, listless mood, from which they were with difficulty aroused.

"With regard to the precautions adopted. The men selected for the expedition were, with one or two exceptions, taken from the Espoir, and were not allowed to enter the lagoon, but joined when the vessel got outside to proceed up. Again quinine was regularly and constantly administered, until the desired amount of cinchonism was produced. Liberty, as regards smoking and amusement, as far as consistent was allowed. Porter was given daily, and other stimulants as required. The bilges were kept thoroughly clean, the lower deck as well ventilated as could be, and awnings kept constantly spread during the day.

"The question may arise,—Is it usual for the poison of miasma to remain so long dormant in the system without showing any signs of its existence? In this case I should certainly answer in the affirmative. Without doubt, the poison in the first instance entered the system, but the amount of exercise, &c. which was absolutely required, prevented the men from succumbing to its influence; but when comparative quiet was established, reaction set in, and then the disease at once made its appearance.

"Martin, in his work on Climatology, draws some analogy between the occurrence of epidemics of fever in places where iron-ore abounds and elsewhere, and instances an epidemic which occurred amongst the crew of the Alberta when at the iron-cliff at Ida, in the River Niger, the men being in all respects well until they reached that place. Again, it is true that none of the men of the Investigator got sick until we reached the rock formations, the first of which occurs at Onitcha. But this analogy cannot, in my opinion, be substantiated. No doubt, in the case of the Alberta, the disease was contracted at the Delta, but did not make its appearance until they reached Ida; and with us no manifestation occurred until three days after leaving the Delta, or fourteen from the first day of grounding in that locality. The great heat which is experienced in the river may have been the means of causing the disease to assume a graver form; the temperature at noon varying from 94° to 104° Fahrenheit, without sufficient breeze to remove the excessive perspiration; however, as if in answer to this, the stokers, who might have been the first, were the last to be attacked."

Remarking upon the total number of cases of primary fever which were under treatment while he was in medical charge of the Investigator, he elsewhere says:

"It will be seen from the sick-list that the principal cases were those of remittent fever, which is at all times very prevalent at Lagos, and may occur in two forms: 1st. The light form, remarkable for the suddenness and violence of the attack, the consequent prostration, and the rapidity of the recovery. With regard to the suddenness of the attack; the patient all at once complains of violent headache, general lassitude, has afterwards a violent fit of vomiting, and it may be, towards evening, an attack of ague. This lasts for

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some time, the debility being by no means consistent with the duration of the disease. About the third day a manifest change for the better occurs, and about the fifth or sixth the patient is able to resume his duties. I have myself observed that perhaps the first indication of the attack is a burning dry heat in the palms of the hands and soles of the feet. The recovery from this attack is not, however, permanent, for in some time after he is again similarly attacked, and with greater severity, as the following Table shows:—

A.

Case.	Duration of First Attack.	Duration of Second Attack.	Duration of Third Attack.
	Days.	Days.	Days.
1	3	10	10
2	3	15	
3	3	13 {with nervous debility.	
4	2	41	—
5	2	7	17
6	3	15	—
7	9	33	11
8	6	8	44

2nd. Again, the disease may from the commencement assume a grave form, all the symptoms before enumerated occurring with greater intensity, lasting a longer time, and the debility resulting being far more difficult to be recovered from, and should a second attack occur it will be with greater force. Table B. shows the duration of this disease:—

B.

Case.	First Attack.	Second Attack.	Third Attack.	Fourth Attack.
	Days.	Days.	Days.	Days.
1	16 {with considerable hepatitis.			
2	16			
3	14			
4	44			
5	13	9	18	11
6	45			
7	43			
8	45			
9	33			
10.	13			

To

"To what, then, is the difference between the two varieties due? Lagos is surrounded by lagoons and mangrove swamps pregnant with vegetable matter which, under the influence of sun and rain, decomposes, and the resulting miasma is disseminated around. Now, when men enter the unhealthy atmosphere of the lagoons, they pass from the blue into the muddy river water, and inhale the vitiated atmosphere instead of the pure sea air. For most men the change is too great, and they, shortly after their arrival, become attacked with fever, which is of the first or light variety; should they escape this attack and remain for a long time exposed, their systems becoming daily weakened, they are less likely to endure an attack of fever, which eventually happens to them, and thus it is that it is of greater intensity and much more difficult to be recovered from. . . . . With regard to the fever as it occurs at Lagos, I am of opinion that men, after their first attack, should be removed from that locality, and sent for a cruise to sea; this would have the effect of at once recruiting their strength, and preventing the recurrence of the disease in a more aggravated form. An entire change in the men and officers would be advisable every quarter, which would tend greatly to lessen the amount of sickness and consequent number of invalids. Men should never be allowed to go on shore in the heat of the day, and should be particularly cautioned not to indulge in the use of any spirits obtained on shore; and in order to prevent such tendency, a supply of porter in moderate quantity has been given to the men; moreover they should not be allowed to indulge too freely in the shell-fish found in that locality, as I have every reason to believe that their use tends to produce diarrhœa of a very irritating kind."

There were thirteen cases of primary fever in the Jaseur, six of which are classed as remittent, and the remainder as febricula; the former type of fever did not assume any serious importance, although convalescence was occasionally tedious. The average duration of each case was about ten days. The cases of febricula are said to have very much resembled influenza; they appear to have been of a very trivial character, the average duration of each case being only two days. The Jaseur only arrived on the station in the Christmas quarter of the year.

There were thirty cases of primary fever in the Landrail, of which one is classed as continued, sixteen as remittent, and thirteen as febricula. The case of continued fever occurred in the person of a seaman, after return from leave at St. Helena; it was of sixteen days' duration, but presented no point of interest. The cases of remittent fever were for the most part mild and uncomplicated; in a few, the period of convalescence was protracted. The type was asthenic, support and even stimulation being early required. The

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average duration of each was about three weeks. The cases of febricula were of a very slight character, each averaging between three and four days' duration; they were considered to be dependent on the same malarious influences that induced the remittent form of fever.

The medical officer* of this vessel bears testimony to the danger of coaling ship at Banana Creek, in the River Congo: he says,—

"In Banana Creek, on the north bank of the river, is now established a coaling-place, where the cruisers frequently go to fill up; this creek is produced by the projection up the river, of a long sandy spit, dry at low water to its very end, but covered nearly to its base at high-water. At the junction of this spit with the mainland is the coaling-wharf, and near it are two large factories, and extensive stores belonging to a Dutch firm. A cruiser, when desirous of coaling, goes into the creek, and makes fast alongside the wharf at high water, grounds at low water, and consequently cannot get out again until next tide. The coal is brought on board by natives, and the crew is not allowed to land. This place has, I believe, been the cause of the greater part of the fever of the remittent type which has appeared during the past year in the cruisers on the south coast. I have, beyond all doubt, traced one of the most severe of our cases to exposure in the creek; and in the small steamer Pioneer, which was the most frequent visitor to the creek, the most severe cases of that disease which I have seen, occurred. I know also that, almost without exception, every cruiser which coaled and remained all night in the creek suffered more or less from remittent fever.

"The employés in the Dutch factories, though naturally anxious to speak well of the place, cannot deny the frequency of the febrile and dysenteric attacks; and the broken health of those long resident there, and the full burying-ground on the spit, bear witness too plainly to the pestilential nature of the climate. I cannot avoid expressing my opinion that it is much to be regretted that Banana Creek has been chosen as a coal depôt."

This officer also speaks in high terms of the prophylactic influence of quinine, to which he attributes, in a great measure, the immunity of the Landrail's ship's company from severe forms of fever.

In the Lee, which only arrived on the station at the close of the Michaelmas quarter of the year, there were fifteen cases of primary fever, all of which occurred during the early part of the Christmas quarter, and were attributed to indiscreet

* Assistant Surgeon T. A. O'Flaherty, M.D

creet exposure to the sun; in some of the cases the symptoms were at first very severe, the attack being characterised by headache, vomiting, and vertigo, which were sometimes ushered in by rigors; these symptoms however did not last long, the average duration of each case being only about four days.

There were sixteen cases of primary fever in the Mullet, eleven of which are classed as remittent, and the remainder as ephemeral; they appear, however, for the most part, to have been mild in character, and of brief duration, each case of remittent fever being, with one exception, only between three and four days on the sick-list. The returns from this vessel are defective, so that but little information connected with her medical history can be obtained.

There were twenty-four cases of primary fever in the Oberon, all, with the exception of one case of febricula, classed as remittent; the majority of these cases, some of which were of considerable severity, were the result of exposure to malarious influences in Banana Creek, where the vessel lay for forty-eight hours coaling. A fortnight afterwards, the ship having been away from all malarial influences in the meanwhile, a number of the ship's company were attacked with remittent fever, every case being accompanied with great gastric irritability and delirium. One of the medical officers* says:—

"The fever was preceded for a short time by chilliness, loss of appetite, slight headache, a sense of weariness and dragging of the limbs, pain in the back, and some soreness of the epigastrium. When it was established there was wandering delirium, particularly at night, when the patient became very uneasy, wanting to get out of his hammock, calling out for different things, imagining that he saw and was speaking to other people, but yet was easily quieted; great debility, complete loss of appetite, with vomiting of anything taken, and, if nothing were taken, of bilious matter, and unquenchable thirst. The brain seems to have been the principal organ affected, and the symptoms, had they occurred in a single individual of known intemperate habits, might have been mistaken for those of delirium tremens; but I should think the state of the pulse and skin would be sufficient to distinguish between them. Of the officers attacked by it, one was a stout man, of a full and plethoric habit

* Assistant Surgeon A. A. Mullen.

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habit of body, and very abstemious with regard to drink. He was ill for about a week, and his symptoms were wandering delirium, loss of appetite, loss of sleep, vomiting and thirst, accompanied by a great desire to get out of his cot and lie on deck. The next officer attacked had severe vomiting, debility, loss of appetite, depression of the system, considerable giddiness, and heaviness of the head. He recovered completely. Another officer had almost the same symptoms, but those of the head were most marked, as in the evening and during the night, he was constantly crying out for things he did not want, and was extremely anxious to get out of his hammock. This officer was sent to Ascension Hospital, from which place he was invalided soon after. In another officer labouring under phthisis in an advanced stage, the febrile symptoms were not well-marked. The fifth officer affected had previously had two severe attacks of fever while serving in the Pioneer. He was very much debilitated by his last attack, and was sent to the hospital at Ascension, where he was subsequently invalided."

It is singular, that of the above five officers, two died violent deaths while labouring under the fever. The first officer referred to was progressing favourably, when, in the absence of his attendant, he attempted to get out of his cot to go to the night-stool, which was close beside him. Being in an exceedingly debilitated state, he stumbled and fell, his head striking the mainmast. The blow was so violent, that he died almost instantaneously. The second death occurred in the officer who, it was stated, was labouring under phthisis. The disease had latterly been progressing rapidly, and he was in so desponding a frame of mind, that a special attendant was appointed to be constantly with him. He appeared to be becoming more reconciled to his symptoms, when about midday on the 25th of June, he went on deck followed by his attendant, for the purpose of going to the water-closet, which was on deck in the port paddle-box. He went in, but almost immediately jumped out of the port-hole, which was close by, into the water. His body was recovered floating shortly after; and having been seen all along, it was at first thought he was alive. He was, however, quite dead, the shock, it is supposed, to one in his debilitated condition, having proved instantaneously fatal.

In the Pioneer, which during the first five months of the year was almost altogether employed in the River Congo, there were thirty-nine cases of primary fever, two of which terminated fatally. They are all classed as remittent; and of the whole number, twenty-six occurred in the Midsummer quarter.

quarter. The officer* in medical charge of the vessel at this time says:— West Coast of Africa Station.

"On the 26th of January, fever of a remittent type made its first appearance on board the Pioneer, and from that date until the end of the period comprised in this Journal (24th of May), the whole of the officers and white crew, together with two Kroomen, were attacked by the disease. The symptoms in every case were marked by severe delirium and great gastric irritability, the principal exacerbations generally taking place towards the evening, and continuing for the greater part of the night. In some few cases, however, these lasted for twenty-four hours, and in two cases for thirty-six hours; the remissions usually occurred in the morning, and had a duration of eight, ten, or twelve hours. With a few exceptions the period of convalescence was short. Of the thirty-two cases admitted to the sick-list during this period, fourteen were primary attacks. One death took place after five day's sickness, from the sudden setting-in of great exhaustion towards the close of an exacerbation, which ended in fatal collapse; and another death occurred in the person of an officer who, after eleven days' sickness from fever, became convalescent, but shortly after was attacked with capillary bronchitis, under which he succumbed. Four cases were sent on board Her Majesty's ship Bristol after a previous survey, and at the suggestion of the surgeon of that ship; these were severe cases of relapse. The remaining cases returned to their duty. After representing to the senior officer of the southern division of the station, the absolute necessity of removing the ship from the neighbourhood of the Congo, the Pioneer left the river, and proceeded some forty-five miles northward to Kabenda Bay, which is situated upon the seaboard, where she remained from the 18th of April to the 21st of May, when she was towed by Her Majesty's ship Bristol again to the Congo, and from thence ordered to proceed to Ambrizetta, and Elephant Bay.

"This outbreak of fever evidently prevailed as an epidemic, as all the crews of the English and foreign merchant ships as well as most of the residents on shore were attacked by it, and it was noticed to have been preceded by unusual meteorological conditions, such as the setting-in of the accustomed annual rains, together with the comparative absence of tornadoes in their proper season."

The next officer† who succeeded to the medical charge of the Pioneer, referring to the above period, observes that:—

"The summer months on the southern division of the station were unusually dry, insomuch that some of the residents dreaded a famine. Towards the close of the season, however, the usual rains, drizzle, and mist appeared, accompanied with a large amount of remittent fever.

* Assistant Surgeon C. Strickland.
† Assistant Surgeon J. S. Levis, M. D.

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fever. All that season the Pioneer lay at the mouth of or in the Congo, in frequent communication with the shore at Banana. During the latter unhealthy period she went up the river, and employed her men actively in rescuing a merchant ship from the shore. The merchantman was brought down with all her hands in fever, and shortly afterwards the Pioneer, which still lay in the Congo mouth, and visited Banana, began to be affected with the disease. All the white hands, with only one exception, were seized with severe remittent fever. The assistant surgeon nearly lost his life by it, and one officer and one man died.

"Although previous to my arrival the ship's company had been almost completely replaced by men from Her Majesty's ship Bristol the crew had a very unpromising cachectic look, and, almost without exception, were in a state of panic; in fact, by the Bristol and other ships of the squadron, the Pioneer was then considered a very pest-house, although other ships had also contracted a large amount of fever at Banana, from an infinitely smaller exposure. As 'preventive' doses of quinine had been used on board previously, and the men took them eagerly, I continued to supply them with it during my entire service in the ship, placing a bottle of its solution on the lower deck in charge of the marine corporal who acted as sick attendant, to be administered once or twice a day, to as many of the whites as chose to take it."

On the 30th of May the Bristol took the Pioneer in tow to Loando and Elephant Bay, with the double purpose of making some necessary repairs in the vessel, and of leaving her for six weeks on the Portuguese coast, south of Loando, in order to recruit the health and restore the confidence of the men. The vessel remained there until the 31st of July, during which time the weather was beautiful, dry, and cool, often positively cold, and remarkably healthy. The men had abundance of leave, and frequently employed themselves in athletic sports, such as football, leaping, &c. The only liquor procurable on shore, excepting at Loando, was vinho Lisboa, which it is said, though not a very admirable wine, was still a healthy liquor. At Loando ale and porter were allowed on board at the rate of a bottle a day to any man who chose to purchase it. A large proportion of the meat served out on that coast was fresh, and the men, with fowls, goats, oranges, pumpkins, sweet potatoes, and onions, contrived to live very luxuriously. The effects soon became apparent in their spirits and general appearance. "They became fat, vigorous, hardy looking, and even ruddy again, and they sadly neglected the quinine bottle." From the time of leaving the Congo, until the 24th of September, when the vessel left for St. Helena, only seven cases of a mild form of remittent fever

fever occurred. The ship's company were, in fact, remarkably healthy. West Coast of Africa Station.

The Rattlesnake only arrived on the station towards the end of October, and she subsequently, during the Christmas quarter, visited Sierra Leone, Jella Coffee, Ascension, and Cape Coast Castle. The health of the ship's company during this time was very good, and the only cases of primary fever were five, of an ephemeral type, the average duration of each being between five and six days.

There were only four cases of primary fever in the Ranger. Of these one, which is classed as continued, was of an ephemeral character, and the remainder are returned as remittent, One of these was only three days under treatment, but the other two, which occurred in the Christmas quarter, had each an average of thirty-eight days' sickness on board ship. One is said to have been induced by exposure during a tornado, and the other is supposed to have been contracted at Jella Coffee; the former resulted in extreme debility, and the other, at the termination of five weeks, in convalescence.

There were fourteen cases of primary fever in the Snipe, eight of which were classed as remittent, and the remainder as febricula. The cases of the former type of fever appear to have been of a somewhat tedious character, but little or no information is given in connection with them.

In the Speedwell, which only arrived on the station in the month of September, there were six cases of primary fever, all returned as of the continued type. They occurred in the Christmas quarter of the year, when the vessel was employed in the Congo, and at Kabenda. The average duration of each case was about a fortnight.

There were forty-six cases cases of primary fever in the Torch, twenty-seven of which were classed as remittent, and the remainder as febricula. These cases occurred during the first two quarters of the year. In the Lady quarter the medical officer* says:—

"Remittent fever, febricula and vertigo were unusually prevalent amongst the ship's company, resulting from exposure to a powerful sun consequent on the ship being much under sail, while cruising off the Islands of St. Thomas and Princes'. In every case, with one

* Assistant Surgeon Jeremiah Donovan.

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one exception, in which the symptoms assumed a remittent type, the patient had previously suffered from remittent fever, showing that the disease remained dormant in the system, and only required some exciting cause for its development. In no instance, however, did it assume a severe form, the average number of days each case was under treatment being from four to five."

In the Midsummer quarter, during which there were fourteen cases of remittent fever, and seven of febricula, he considers the disease to have been occasioned by exposure to malarious influences in Banana Creek, River Congo, where the vessel lay from the evening of the 28th to the 30th of March, during which time she was hauled up close to the wharf, for the purpose of coaling; knowing the unhealthy nature of the locality, quinine was given to the men, but unfortunately not for a sufficiently long time, the supply on board having become limited.

There were twenty-nine cases of primary fever in the Vestal, one of which proved fatal. Seventeen of these are classed as continued and the remainder as remittent. The average duration of each case of continued fever was between thirteen and fourteen days, and of each case of remittent fever about nineteen days. The surgeon* make the following remarks on African fever:—

"My first acquaintance with African fever was at Sierra Leone, where a considerable number of men presented themselves, with much lassitude, hot skin occasionally, quick pulse, foul tongue, digestive disorder, with hepatic inaction, and sluggish action of the bowels. Such symptoms indicated the use of dejective measures to clear out the portal system, which was accordingly done by means of saline aperients with diaphoretics, and effected a cure generally in a week. The cause of this outbreak I believe to have been a rapid transition from a cold to a hot climate combined with the debilitating effects of the atmosphere of Sierra Leone.

"The cases were not treated with quinine.

"The instances of the disease that subsequently occurred were generally mild and curable, with the exception of those which occurred among the small-pox patients unfortunately located on shore at the mouth of the Congo, of whom several were so worn out by repeated attacks that they were discharged to hospital. It was only in one instance that I observed the occurrence of severe head symptoms in this disease. They consisted of partial insensibility and a semi-comatose condition, which required the use of strong purgatives. It is rare that a patient with fever does not further

* Surgeon G. W. J. Sutherland, M.A.

complain of headache. Although several of my worst fever patients complained of pain in various parts of the chest, there was no thoracic disease detected in any.

"From the complete loss of appetite, occasional pain in the right side, disorder of the stomach, foulness of the tongue, and almost invariable yellowness of the visage and sclerotic, I am inclined to the belief that no case of fever on the coast is free from liver complication, and I have not seen any instance of which the contrary could be said. In mild cases the liver is sluggish, and benefit invariably follows the use of such remedies as deplete it. The man who died of this disease was so *burnt up* by it, that I had no opportunity for coming to a conclusion of any kind. In protracted cases, which will invariably continue as long as the sources of malaria are at hand, the digestion continues impaired, and the complexion sallow, symptoms due as much, at least, to the liver as to the stomach alone. In a severe case of fever the liver appears to be inactive, the kidneys to act irregularly, and every other organ to be affected by the disease."

No detailed history of the fatal case is given, but it occurred in the person of a petty officer, assumed an intense and virulent form, paralysing the action of the digestive and secretory organs, and appearing to render remedial measures of no effect. Death took place on the fourth day. The man had previously served for four and a half years on the station.

There were fourteen cases of primary fever in the Vindictive, the stationary store ship at Jella Coffee, in the Bights of Benin. Twelve of these are classed as remittent, and two as febricula. The disease, for the most part, was not of a severe character. It generally appeared in men who had had previous attacks, and was marked by some degree of irregularity in the febrile exacerbations. The attack was generally ushered in by pain in the back, giddiness, and a feeling of extreme cold and shivering. In no instance did the patient complain of having felt out of health for more than two hours before the shivering began. The treatment found most effectual was to clear out the primæ viæ, and as soon as a distinct remission occurred, to give a scruple of quinine, and continue the alkaloid in four-grain doses every four hours during the day. Irritability of the stomach, which was not of frequent occurrence, was as a rule relieved by application of a sinapism to the epigastrium. It was generally found necessary to have recourse to the scruple dose of quinine three times before the febrile accessions were checked. The average duration of each case was from eight to ten days.

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Yellow Fever.—Two cases of this malignant form of fever appear in the Returns, both of which proved fatal. Reference has already been made to the case returned as yellow fever in the Assurance; it appears rather to have been a case of jaundice complicated with high febrile symptoms, than of the specific fever itself. The other case occurred in the person of the ship's steward of the Dromedary, who had recently joined the ship. While the vessel was at St. Paul's de Loando he had been three times on shore on duty, twice to the town, and once to the depôt to superintend the stowing of provisions, when the smell from decomposed meats was most offensive. He was of steady habits, and did not expose himself unnecessarily. Two days after leaving St. Paul's he presented himself complaining of severe supra-orbital headache, and of pains in the back and limbs. The skin was hot and pungent, the thirst urgent, and there was nausea and vomiting of a green bilious-looking fluid. The pulse was 116, full; the tongue covered with a white fur at the centre, but clean at the edges and tip; the bowels constipated, the eyes suffused, and he presented a drowsy and drunken-like appearance. He stated that he had had chills during the night. Under the treatment to which he was subjected, the gastric irritability became somewhat relieved, but it recurred on the following afternoon, the matters ejected being of a dirty brown colour. On the night of the second day he was delirious, the bowels were relaxed the dejections being of a dark brown colour. On the third day there was copious vomiting of dark coffee-ground-looking fluid, and purging of thin tarry-looking stools, with a little blood on the surface. There was also oozing of blood from the nostrils, and he was constantly spitting blood; the skin and conjunctivæ were yellow. On the fourth day it is reported that he had passed a very restless night, and had several copious stools of a black colour; he had also twice vomited a quantity of perfectly black fluid. The skin was quite yellow, the pulse rapid and almost imperceptible, the surface cold and clammy, the tongue covered with blood, otherwise clean. Hæmorrhage continued from the mouth and nose. He passed urine during the night, which was turbid and albuminous. The intellect was perfectly clear. At 11 a.m. of the fourth day he vomited a large quantity of black fluid and passed a stool of the same colour, after which he fell into a state of collapse and died at 1 p.m., the intellect remaining quite clear to the last. The body was examined nineteen hours after death, and the following report of

of the autopsy is by the medical officer* of the vessel, from whose more extended report the foregoing abridgement of the case has been made :—

"Body well nourished, and skin of a lemon-yellow colour, with several hæmorrhagic spots, about the size of flea-bites, visible on the trunk and extremities. On removing the pillow from underneath the head, a large quantity of black fluid ran from the nose and mouth; and dark fluid of the same quality came away *per anum*. The stomach was highly congested and softened, particularly along the posterior wall and lower curvature. The mucous membrane was studded over with a number of minute red points, into which the termination of large and tortuous vessels ran, and from which the disorganised blood no doubt came. The organ contained about half a pint of black glairy fluid. The intestines, both large and small, also contained a large quantity of black fluid, similar to that found in the stomach. The whole of the mucous membrane presented a deep red hue, and innumerable small dark clots of blood were firmly attached to the surface. The liver looked smaller than usual, and was of a yellowish ochre colour, excepting at the thin edge, where it was stained black throughout its substance. The gall-bladder was very much thickened, perfectly black; and about two or three drachms of bile were found in it, which resembled coal-tar in colour and consistence. The spleen was soft, and easily broken down. The kidneys were healthy. The bladder was half full of turbid straw-coloured urine. The thoracic viscera were healthy."

St. Paul's de Loanda, it is said, appeared to be healthy at the time this man was on shore there.

Small-pox.—Twenty-three cases of small-pox appear in the Returns, of which one occurred in the Assurance and twenty-two in the Vestal. Two of these proved fatal.

The case in the Assurance occurred in the person of a Krooman who had been vaccinated. He was placed on the sick-list on the 24th of May, for what appeared to be a slight febrile attack, and discharged on the following day, all the febrile symptoms having disappeared. On the morning of the 27th, an eruption resembling small-pox having been observed on his face and trunk, he was at once sent to hospital at Sierra Leone. Small-pox was prevalent at Sierra Leone at the time.

The history of the outbreak of small-pox in the Vestal is thus given by the surgeon of the ship :—

"This disease made its first appearance in the ship on the 28th of June,

* Assistant Surgeon H. Macdonnell.

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June, in the person of a Krooman, who acted as a guide to the assistant surgeon on a visit to the small-pox hospital at Sierra Leone, on an occasion of duty, when the ship was there. Whether this man contracted the disease there or in the low quarters of Sierra Leone, is uncertain. It must have been latent in his system, at least, from the 10th to the 28th of June, the former being the date of departure from Sierra Leone, unless he used, at some subsequent date, an article of infected clothing. He was the probable cause of the epidemic which afterwards broke out. . . . . The next case occurred on the 14th of July, when the ship was at sea, on a voyage to the Congo, and was fatal. As the ship was only two days' sail from Ascension, it became a question of some importance whether to proceed on the voyage or to return to Ascension; but, as the vessel was laden with provisions for the cruisers of the Southern Division, and it was hoped that complete isolation of a single infected case would tend to circumscribe the contagion within a limited space, it was determined to proceed on the voyage.

"On the 18th a second case appeared, and was at once isolated, like the other, inside a canvas screen, under the top-gallant forecastle, which passed from side to side of the ship, having in front of it one large port in the bows, and one on each side, thus ensuring sufficient ventilation, an advantage these blacks do not at all appreciate, for, in spite of orders to the contrary, I frequently found these ports closed, and the variolous smell inside the screen would then be all-powerful.

"The food of the individuals inside the screen, or hospital as it was termed, was brought to the outside of the screen, where it could be taken by the attendants inside; but no one inside was allowed to show himself outside the screen, neither, of course, was ingress permitted to any person whatever except myself, who found it necessary, by several visits a day, to be satisfied that cleanliness and ventilation were properly maintained.

"During the severity of the fever in this second case the patient broke loose, and being a powerful man, it took several of the crew to rescue and bring him back to his quarters. Fortunately, none of these individuals contracted the disease after personal contact with him. The pustules were at this time developed.

"The attendants upon these two patients were Kroomen who had had the disease before, or pretended they had. One was too well pitted to raise any doubts on the subject, but the other three had no indications of having had the disease at all. Three watches were kept day and night, so as to preclude the chance of any of the infected men escaping overboard, or from under the screen. At a subsequent date three of these attendants contracted the disease and recovered from it, having had but a mild attack, which began in the one on the seventeenth, in another on the eighteenth, and in the third on the nineteenth day after their attendance on the infected patients began. The man who was already pitted escaped throughout the entire progress of the contagion, both on board the ship, and subsequently on shore at Shark's Point.

A liberal supply of disinfecting powder was always at the disposal

posal of those inside the screen, and they were strictly enjoined to use it, and did so.

"On the 18th of July a Marine became the subject of observation, as he presented on his face and arms a crop of suspicious papulæ, which appeared likely to terminate in the true contagion. On his account, and as the forecastle space was already sufficiently fitted up, a canvas tent was erected over the booms between the foremast and funnel, and gave him excellent accommodation. He returned to duty in eight days; and an artilleryman who showed the same symptoms on the 20th of July was cured in four days, the eruption gradually disappearing. As this boom tent was now empty, I thought it would ensure a more perfect isolation to place the black patients and their attendants in this elevated position, and clear out the forecastle, which was on a level with the deck on which the crew worked. This was done on the 28th of July. During the voyage to the Congo the wind was nearly abeam, which was, I think, beneficial, in so far that the infected air in the forecastle was not driven aft among the men engaged in deck duty, but transversely through the side-ports already mentioned. I do not consider this by any means a matter of small importance.

"Being aware what an excellent medium of communication I must, under such circumstances and with so many people in a limited space, have become, I made it a custom often to change my clothing, and also to go after each visit to these black patients on to the top-gallant forecastle, to take whatever benefit the fresh breeze might confer.

"The ship arrived at the Congo on the 31st of July, and went next day to Loando, in hopes of there landing the contagious cases; it did not appear to be known that the Portuguese are extremely rigid in the execution of the quarantine laws. Accordingly, to our inquiries as to the obtaining of *pratique*, the possibility of landing the sick, or placing them in a hired chop, or small vessel, &c. &c., the constant reply was a decided negative; so we left Loando on the 6th of August, to the great detriment of our future sick, and reached the Congo on the 7th. In steaming to Loando, the wind was ahead. I will not pretend to say for certain that that had anything to do with the subsequent increase of the contagion by the more ready dissemination of the virus; perhaps not. Arrived at the Congo, the senior officer ordered the sick to be landed at Shark's Point. I was at first favourably disposed to this place, a sand-spit, skirted on the south by trackless mangrove forests and swamps; but my opinion has changed; it is too dangerously near the sources of African fever. Shark's Point, however, was the most readily available and convenient locality that could at the time have been selected in an emergency.

"The sick were placed in tents, on an elevated spot nearly a quarter of a mile inland. Meanwhile, four cases had appeared up to the 7th, and sixteen subsequently, the last being on the 6th of September. It is deserving of notice that no case broke out from the 14th of July to the 4th of August, a period of twenty-one days. This long immunity I am inclined to ascribe to the precautions

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which were taken to isolate the contagion, as much as possible, in the spot assigned to it.

"During a great portion of July and to the 24th of August, the crew were medically inspected, as a precautionary measure. On the latter date the practice was discontinued. I never detected a case of the disease by this means, the eruption being invariably preceded by fever or febricula.

"The first white man who contracted the disease was taken ill on the 9th of August. He was sent ashore on the 13th, when the eruption became characteristic of the contagion. I am not inclined to think that during these four days there was much probability of of the virus spreading. At all events, no person in the vicinity of this man's cot became affected. The same observation applies to others of the white men. Indeed, all the whites who caught small-pox messed and lived on the lower deck, and came first under my notice as cases of fever and febricula, followed in a day or two by an eruption which in another day or two showed the peculiar marks of small-pox. The total number of these men was only six, and all living in different parts of the lower deck.

"There are but few points in the medical history of this epidemic that deserve to be noted. The generality of the cases were types of the ordinary and mild form of small-pox, commencing with more or less fever, followed by eruption, and terminating in the drying and desquamation of the pustule. Some of the black patients, however, became affected with dropsical swelling of the hands or feet or both, and albuminous urine, called by a Portuguese medical friend at Loando *la maladie de Bright*. These swellings were sometimes attended with vesications terminating in ulcerative absorption and the formation of extensive ulcers, the cure of which was highly tedious. After a time the swelling subsided, contemporaneous with the period following the development of the pustule. These black people have a passion for warm water, which they drink, and with which they also rinse out the mouth, and they also rub oil over their heated skins, probably with much benefit. Among them the only confluent case was fatal. There was but one confluent case among the whites, and it was nearly fatal. So great was the debility induced, that sixty days from the commencement of his illness elapsed before the eruption had disappeared.

"Whether or not it was judicious to retain on board such of the whites as had fever followed by papular eruption until it became characteristic of small-pox may be called in question, but the position was a difficult one in consequence of the number of persons who had spurious eruption which closely approximated small-pox without, however, being truly variolous. Of this variety there were fifteen cases recorded, thirteen being white men. Occasionally there was accompanying fever followed by a papular eruption on the face and arms, and ending either in desquamation without further progress, or in genuine pustules. The eruption in one case was rubeolar. All these persons as soon as the papular appearance showed itself were partially isolated, until time gave me an opportunity to test its true nature; four or five days generally effected a cure. In the early stage I could not tell whether these spurious forms would end

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in variola or not. I do not think the eruption was contagious. Its occurrence was no protection against a subsequent attack of small-pox, for I find three persons on the sick-list so circumstanced, but they all had mild attacks of the contagion, contracting it fourteen, fifteen, and thirty-nine days respectively after the cure of the eruption.

"As soon as each patient recovered he was removed to a quarantine tent, where after a period at first of twenty-one and latterly thirty days' quarantine, he came on board, first undergoing personal ablution, putting on clean clothes, all his kit being previously disinfected and then taken on board, to prevent the possibility of further infection. This process of disinfection I found particularly laborious. It had to be performed under my superintendence, and involved the necessity of sun exposure for hours together, no article whatever that had been taken on shore being eligible for reception on board until it had undergone the disinfecting process.

"The daily visits ashore were performed always twice, or sometimes thrice, according to circumstances. On the 10th of October I received orders to proceed on shore and remain in charge of the sick, as the ship was going to sea for a few days. I remained on shore until the 25th of October, having meanwhile had a commodious hut built for myself, as well as a quarantine hut for the convalescent whites, replete with all the conveniences that a structure so readily made out of ordinary grass could afford.

"On the 11th of November the quarantine period had expired, and all the whites as well as blacks were taken on board, their effects having been first washed and disinfected; the huts were then burnt.

"Fresh supplies were obtained in liberal quantity for the sick during the whole period of their stay on shore. I regret that this advantage did not prevent any of the white men from having attacks of fever either during their stay on shore or after their return to the ship, those suffering most who were longest on shore. An interval of eighteen days elapsed between the last case of small-pox on the 6th of September, and the previous one. This last case was a Krooman who had been in the jolly-boat. He might have strayed to the quarters of the sick contrary to orders, and caught the disease in that way, or he might have caught it from me as a medium of communication, or he might have had communication with some women ashore suspected of having had small-pox. There are no other means by which I can conjecture how the disease was contracted, unless it was latent eighteen days in his system.

"Of the twenty-two cases, one died at sea, and one at Shark's Point, both Kroomen. Three of the white men subsequently broke down with fever, and were sent to Ascension Hospital."

All the white men attacked in this epidemic showed marks of previous vaccination; while of the Krooman, eleven had neither been previously vaccinated, nor suffered from small-pox.

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Scarlatina.—A single case of this disease appears in the returns from the Oberon. It is stated to have been of the mildest character, but little information is given in connection with it.

Diseases of the Brain and Nervous System.—There was an increase in all the ratios coming under this head, compared with the preceding year. In the ratios of cases and of mortality, the increase was considerable. Of forty-three cases of various forms of disease, twelve were invalided, and seven proved fatal.

A fatal case of disease of the brain occurred in the person of a Marine of the Flora, who was doing duty on shore at Ascension. He was admitted to hospital there on the 8th of December, in consequence of his messmates having for some time past observed him to be very eccentric and strange in his behaviour. On admission he made no complaint, and appeared quite rational. He was, however, placed in a ward by himself, and closely watched. In the evening the pulse was quick, the breathing laboured; he complained of headache, and had been incoherent during the afternoon. He had had some purgative medicine on admission, which, however had only operated once. His symptoms varied somewhat for the next two days, the most prominent being loss of memory, persistent headache, and occasional muttering delirium. The difficulty of breathing was also complained of. On the morning of the 11th, it was reported that he had slept well, and the bowels were freely open; the skin was moist and cool, the tongue but slightly coated, and the pupils natural. He stated that he had pains all over him, but not more severe in one place than another, that his head was heavy, and he felt a twitching in his legs when he walked. At 11.30 p.m. of the same day, he complained to the nurse of great pain in the chest, and sickness; his memory had returned. The nurse immediately called the medical officer, who was on the spot at once, but found the man dead. On post-mortem examination of the body, the brain was found to be very pale, with slight effusion into both lateral ventricles; the left hemisphere was slightly softened, and the right crus cerebri was as soft as cream. The lungs and heart were healthy.

A case of inflammatory disease of the brain terminating fatally occurred in the person of a stoker of the Greyhound, who, on presenting himself, complaining of rigors and severe headache,

headache, was at once discharged to the hospital at Ascension as a case of fever. The pulse was slow, and the tongue clean. He had been much depressed for some time previously, it appeared. In hospital the head symptoms continued, with subsultus tendinum of the arms and legs, he being delirious and insensible, in which state he remained until brought under the influence of mercury, when all his symptoms improved so much that he was invalided, and embarked on board the Bristol for a passage to England. For some days after being at sea he remained quiet, but the noises inseparable from a ship-of-war soon excited him, and he became violently maniacal. In this state he continued for two days, when coma set in, and he somewhat suddenly expired. On post-mortem examination of the body, the membranes of the brain were found much congested, the arachnoid opaque, and at the base of the brain some fresh lymph was found effused. There was a considerable amount of serous effusion between the convolutions of the brain, but little in the ventricles. The choroid plexus was pale, the brain-substance firm.

In the Investigator, an officer who had been much exposed to the sun while the vessel was in the River Niger, was placed on the sick-list suffering from severe headache with irritability of the stomach and persistent constipation, and on the evening of the same day became violently delirious. This condition continued without change for four days, when he died comatose. There was no post-mortem examination of the body, but there can be little doubt that the cause of death was meningitis, the result of insolation.

A fatal case of softening of the brain apparently, occurred in a petty officer of the Oberon. He had been subject to epilepsy, it is stated. The symptoms for which he was first placed under treatment were those of incipient paralysis. He complained of weakness and of inability to walk steadily, or to stand without support; he did not suffer any pain. On the day after being placed on the sick-list, there was ptosis of the left eyelid, and on the following day paralysis of the left arm and side of the face. Subsequently the mind became affected, and occasionally he passed urine involuntarily. In this state he was discharged to the Vindictive for treatment, whence, having improved somewhat, he was sent to Ascension Hospital for further treatment, where he improved considerably, and was ultimately invalided. On the passage to England, a recurrence of all his worst symptoms took place, and proved rapidly fatal. No post-mortem examination of the body was made.

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There were three deaths from apoplexy. One occurred on the person of a Krooman of the Bristol, who was found in the middle of the night lying on the deck insensible and unconscious. The pupils were contracted, the mouth set, and the teeth clenched. He was unable to swallow, and had constant convulsive movements of the limbs, rolling the head from side to side, and moaning. There were occasional spasms of the back almost amounting to opisthotonos. He died in a few hours from first being seen, unconscious and insensible to the last. There was no autopsy.

The other two cases of apoplexy were caused by excessive heat. They occurred in the persons of an engineer officer and a stoker, both of whom were taken ill when on duty in the stokehold. They proved speedily fatal, and in neither was any post-mortem examination of the body made.

Diseases of the Organs of Respiration.—There was a considerable increase in the ratio of cases and of mortality under this head compared with the preceding year, but the invaliding rate was lower. Five deaths occurred from inflammatory diseases of the lungs, and four from phthisis. With one exception all the deaths from inflammatory disease occurred in Kroomen.

Influenza was epidemic in the Greyhound in February, fifty-five cases of the disease having been entered on the sick-list during that month. The surgeon says :—

"Soon after we had put to sea for the Cape de Verde Islands, catarrhs and bronchial affections began to make their appearance, and by the 19th of February influenza was epidemic in the ship. The average days' sickness was from four to five. The general symptoms were headache, coryza, suffusion of the eyes, hot skin, and quick pulse. The tongue in some instances was covered with a creamy fur, in others it was clean and quite natural, while in several again it was unnaturally red and fissured. There was also pain across the loins, pain and weakness of the extremities, and general lassitude. Many complained of tightness across the chest; several had cynanche tonsillaris and pain along the trachea, and others complained of pain across the lower part of the abdomen. The patients in many cases said that they felt as if they had been beaten all over with a stick. In most cases the bowels were constipated, but in several there was diarrhœa. Nearly all had more or less cough. One or two cases were more severe than others, these being attacked by peculiar head symptoms, becoming semi-comatose, and remaining so for a day or two. One man, the head Krooman, died from pneumonia following on an attack of this catarrh. One boy who was on the sick-list at the time suffering from otitis had

had a severe seizure, the symptoms being chiefly connected with the head, and subsequently he had an attack of dysentery. In another case the man, after being on the list for some time with no apparent urgent symptoms, was suddenly attacked with pain in the left side of the chest, and great headache and faintness; he had a foul brown tongue, and a quick pulse. Another fell down in a comatose state, just after being relieved from somewhat hard work in coaling at St. Vincent."

The numbers placed upon the sick-list on this occasion do not, it appears, indicate the great prevalence of the disease. Scarcely anyone on board the vessel escaped, nearly all the officers and men being more or less affected, although not to such a degree as to necessitate their being suspended from duty. The epidemic is attributed to the great heat experienced in the harbour of Sierra Leone being suddenly exchanged for a falling temperature on proceeding north.

Diseases of the Heart and Bloodvessels.—There was an increase in all the ratios coming under this head, compared with the preceding year. Of thirty-four cases of various forms of disease entered on the sick-list, thirteen were invalided, and three proved fatal, of which two were from disease of the heart, and one from aneurism.

Of the fatal cases of heart disease, one occurred in a Krooman who had been for some days under treatment for an attack of rheumatism of the left leg and knee. Metastasis to the heart suddenly took place, and despite every form of treatment he died from the effects of pericarditis. The other fatal case also occurred in a coloured man, an officer's servant, of the Greyhound, and presented some peculiar features. He had been under treatment for pain and swelling of the foot for six days towards the termination of the previous year, but had been discharged to duty, these symptoms having entirely disappeared. On the 20th of January he again presented himself with œdema of the foot and dull aching pain on pressure. The swelling increased, and an abscess subsequently formed on the dorsum of the foot, which was opened on three different occasions; on the last two of which the hæmorrhage was considerable and difficult to control. He was ultimately sent to the Vindictive to wait a passage to Ascension Hospital, and while on board that vessel exploration of the incisions made on the foot revealed disease of the bones of the tarsus. On the 10th of April he was seized with epistaxis, which was only controlled by plugging the nares. It recurred on the 12th, and the nares

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were again plugged, the plugs being allowed to remain until the 16th, when they were removed without any renewal of the bleeding. In the meanwhile the discharge from the foot had increased in quantity and became offensive in smell. On the 24th of April he suddenly expired, almost in the act of making an observation to another sick man. He had been twice seen in the forenoon of that day, and appeared to be going on as usual. The report of the autopsy by the medical officer* of the Vindictive is as follows:—

"On post-mortem of the body the heart was found enlarged, and perfectly adherent to the pericardium, so that it was impossible to separate them. Large deposits of cheesy-looking tuberculous matter were found around the left side of the heart, and especially at the left apex, by which this latter was firmly adherent to the diaphragm. On opening the heart, masses of the same kind of matter, of somewhat rounded shape and smooth surface, and varying in size from a pea to a small marble, were found adherent to the walls of the left ventricle and auricle, having caused absorption to some extent of the muscular tissue, but there was no deposit on the valves, and the orifices of the heart were quite free from it. A single deposit of the size of a small marble was found adherent to the upper part of the right auricle, but none in the right ventricle. The orifices and valves of the right side of the heart were entirely free from deposit. The lungs were healthy, with the exception of a slight deposit of lymph on the free edge of the left lung, where it overlapped the heart. The liver was somewhat enlarged, and on cutting into its substance matter similar to that found in and around the heart appeared deposited in it. The other organs of the body were healthy.

"On examination of the foot, caries of the surfaces of the middle and external cuneiform and cuboid bones, where they articulate with the metatarsal bones, was found. The bases of the metatarsal bones articulating with these were diseased; the internal cuneiform was also diseased where it articulates with the metatarsal bone of the second toe. The diseased surfaces were soft, so that they could to some extent be scraped away with the scalpel. The tissues around these parts were thickened."

The fatal case of aneurism occurred in the person of a petty officer of the Mullet, who during ten months he had been on board that vessel had never had a day's illness. He suddenly, while on deck, vomited apparently, large quantities of blood, and in a very few minutes expired. On post-mortem examination of the body, the pericardium was found to be natural, and contained an ounce of straw-coloured serum. The lungs were healthy. The mitral and tricuspid valves

* Assistant Surgeon J. Mockridge.

valves were natural. The left ventricle was somewhat hypertrophied; the right normal. Both ventricles were completely empty of blood. The heart weighed thirteen ounces. On laying open the aorta, a small aneurismal sac, nearly the size of a walnut, was found on its transverse arch, firmly adherent to, and communicating with, the trachea. The opening was nearly half an inch long, and the lips fully a sixth of an inch apart. There was no atheromatous degeneration. The abdominal viscera were healthy.

Diseases of the Alimentary Canal.—There was a reduction in the ratio of cases coming under this head, compared with the preceding year, but the invaliding and death rates were higher. There was, in fact, no mortality from these diseases in 1866. Two hundred and sixty-three cases altogether of disease were under treatment, and of these four were invalided, and five proved fatal.

A somewhat extensive epidemic of diarrhœa occurred in the Bristol in the month of June, when the vessel was at Elephant Bay. It appears that on the afternoon of the 10th of that month a large quantity of fish was caught by the seine, and the men on the morning of the 11th, having more than they required for breakfast, foolishly kept the surplus for dinner, and some few still more foolishly kept their fish till supper-time. During the night forty-seven men were attacked with severe cramps in the stomach, vomiting, and purging. The pain in some cases was most severe, the men rolling about the decks in agony, and in some there was considerable collapse. Next day fifty-six were attacked in a similar manner, and altogether during the epidemic 170 cases were under treatment, although only about forty were entered on the sick-list. Four of the men suffered for several days from abdominal tenderness, diarrhœa, and irritability of stomach. Among the ward-room servants at the same time diarrhœa became prevalent, as a consequence of eating largely of a sour cheese, not unlike cream cheese in appearance, obtained from the Portuguese. In all cases it brought on vomiting, griping, and diarrhœa.

In the Greyhound, which was the only other vessel in the squadron in which diarrhœa was at all frequent, forty-six cases were entered on the sick-list. They were tolerably equally distributed over the various quarters of the year, and were attributed to atmospheric changes and dietetic irregularities, especially with regard to fruit and fish.

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Diseases of the Genito-Urinary Organs.—There was a reduction in the ratio of cases coming under this head, compared with the preceding year, equal to 34·4 per 1,000 of mean force; there was also a slight reduction in the invaliding rate. There were, in fact, only thirty-eight cases of primary syphilis in the squadron throughout the year, and nearly a third of these occurred in the Bristol, which had recently returned to the Station from England.

Rheumatism.—There was a reduction in the ratio of cases of rheumatism compared with the preceding year, but the invaliding rate was much higher, and one death was occasioned by it, while there was no mortality from this cause in 1866.

The fatal case occurred in a Krooman, and death was occasioned by metastasis of the disease to the heart. He had been under treatment for pain in the left leg extending to the thigh, and accompanied with some swelling, from which symptoms he was steadily recovering, when he was suddenly [illegible]h violent præcordial pain, accompanied with [illegible]and cough. Every effort was made to check the [illegible]f the disease, but without effect.

Diseases not classed.—Two deaths occurred from debility; one in an officer who was invalided for the sequelæ of fever, and ultimately sank exhausted; and the other in an officer's servant who, without presenting any very decided symptoms, was frequently complaining of feeling unwell, and of weakness. His appetite was very capricious; at one time he could eat little or nothing, at another he swallowed his food voraciously. At Loando he had a slight attack of fever, which occasioned great mental depression, and although the fever was subdued, he never recovered his spirits, but gradually got weaker and weaker. Great thirst was the only prominent symptom he had. He never complained of any pain, but always expressed himself as feeling very comfortable. All attempts to keep up the strength proved fruitless, and he ultimately died exhausted, not having shown any marked symptoms of disease of any kind. No post-mortem examination of the body was made, but death was supposed to be attributable to disease of the mesenteric glands.

Wounds and Injuries.—One man was killed in action by a gunshot wound of the abdomen; an officer in a state of extreme

extreme debility following fever fell against the mainmast, and struck his head with such violence as to cause fatal concussion of the brain; and a man fell amongst the machinery of one of the vessels while in motion, and was crushed to death.

Three men were drowned. One jumped overboard in a fit of delirium; one fell overboard from aloft; and one was capsized in a canoe.

A diver was asphyxiated by the diving apparatus fouling in the attempt to clear a hawser from the screw of the Vestal. An officer labouring under advanced phthisis, and who had shown some symptoms of suicidal monomania, for which he was carefully watched, seized an opportunity, and before he could be stopped jumped overboard and was drowned.

The total number of deaths was fifty, which is in the ratio of 27·1 per 1,000 of mean force, being an increase, compared with the preceding year, equal to 1· per 1,000, and a decrease, compared with the average death-rate taken for a period of ten years, equal to 1·8 per 1,000.

Invalided.—Twenty-eight persons were invalided for the sequelæ of fever; twelve for diseases of the brain and nervous system; twelve for diseases of the respiratory organs, eleven of whom were consumptive; thirteen for diseases of the heart and bloodvessels; four for dysentery; three for disease of the liver; eight for diseases of the genito-urinary organs; twenty-three for rheumatism; two for diseases of the special senses; eight for diseases of the skin and cellular tissue; twenty-six for diseases not classed; eight for wounds and injuries of various kinds, and six for hernia. The total number invalided was 153, being in the ratio of 83·1 per 1,000 of mean force, which is an increase, compared with the preceding year, equal to 3·4 per 1,000. Compared with the average invaliding rate, taken for a period of ten years, the increase is 30·6 per 1000.

TABLE, No. 1.

SHOWING the Number of Cases of all DISEASES and INJURIES, and the Number INVALIDED and DEAD, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Continued and Remittent Fever	525	305·2	24	13·	8	4·3
Yellow Fever	2	1·1	-	-	2	1·
Intermittent Fever	47	27·3	4	2·1	1	·5
Small-pox	23	13·3	-	-	2	1·
Scarlatina	1	·5	—	—	—	—
Disease of the Brain	4	2·3	2	1·	4	2·1
Apoplexy	3	1·7	-	-	3	1·6
Epilepsy	9	5·2	4	2·1	—	—
Paralysis	3	1·7	2	1·	—	—
Insanity	3	1·7	3	1·6	—	—
Neuralgia	10	5·8	—	—	—	—
Vertigo	11	6·3	1	·5	—	—
Inflammation of the Lungs and Pleura	32	18·6	1	·5	5	2·7
Phthisis and Hæmoptysis	11	6·3	11	5·9	4	2·1
Influenza and Catarrh	262	152·3	—	—	—	—
Cynanche	33	19·1	—	—	—	—
Disease of the Heart, Functional and Organic	25	14·5	11	5·9	2	1·
Hæmorrhoids	7	4·	1	·5	—	—
Varix	1	·5	1	·5	—	—
Aneurism	1	·5	-	-	1	·5
Disease of the Stomach and Bowels	9	5·2	-	-	2	1·
Dysentery	10	5·8	4	2·1	3	1·6
Diarrhœa	204	118·6	—	—	—	—
Constipation and Colic	40	23·2	—	—	—	—
Disease of the Liver	11	6·3	3	1·6	—	—
Jaundice	1	·5	—	—	—	—

TABLE, No. 1.—Showing the Number of Cases of all Diseases, &c.—*continued.*

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	3	1·7	1	·5	—	—
Syphilis, Primary	38	22·	2	1·	—	—
Syphilis, Secondary	12	6·9	3	1·6	—	—
Gonorrhœa	26	15·1	—	—	—	—
Orchitis	32	18·6	1	·5	—	—
Stricture	6	3·4	1	·5	—	—
Rheumatism	174	101·1	23	12·5	1	·5
Gout	4	2·3	—	—	—	—
Disease of the Bones and Joints	15	8·7	—	—	—	—
Inflammation of the Eyes	33	19·1	—	—	—	—
Amaurosis and Cataract	5	2·9	1	·5	—	—
Otitis and Deafness	15	8·7	1	·5	—	—
Erysipelas	8	4·6	—	—	—	—
Scrofula	1	·5	—	—	—	—
Bubo (*Symp.*)	18	10·4	—	—	—	—
Phlegmon and Abscess	829	481·9	6	3·2	2	1·
Ulcer	306	177·9	2	1·	—	—
Psora	2	1·1	—	—	—	—
Eruptions, &c.	41	23·8	—	—	—	—
Dyspepsia and Debility	208	120·9	22	11·9	2	1·
Scurvy	1	·5	1	·5	—	—
Dropsy	2	1·1	1	·5	—	—
Worms	2	1·1	—	—	—	—
Headache	59	34·3	2	1·	—	—
Wounds and Injuries	643	373·8	8	4·3	3	1·6
Burns and Scalds	28	16·2	—	—	—	—
Hernia	10	5·8	6	3·2	—	—
Drowned	-	-	-	-	3	1·6
Asphyxia	-	-	-	-	1	·5
Suicide	-	-	-	-	1	·5
TOTAL	3,809	2214·5	153	83·1	50	27·1

TABLE, No. 2.

SHOWING the Number of DAYS' SICKNESS from each DISEASE, and from INJURIES, the Average Number of Men Sick Daily, with the Ratio per 1,000 of Force.

DISEASE OR INJURY,	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Continued and Remittent Fever	5,917	864	6,781	18·5	10·
Yellow Fever - - - -	31	- -	31	—	—
Intermittent Fever - - -	534	9	543	1·4	·7
Small-pox - - - -	556	76	632	1·7	·9
Scarlatina - - - -	12	- -	12	—	—
Disease of the Brain - -	14	10	24	—	—
Apoplexy - - - -	3	- -	3	—	—
Epilepsy - - - -	92	44	136	·3	·1
Paralysis - - - -	26	110	136	·3	·1
Insanity - - - - -	38	9	47	·1	—
Delirium Tremens - - -	1	- -	1	—	—
Neuralgia - - - -	53	- -	53	·1	—
Vertigo - - - - -	35	15	50	·1	—
Inflammation of the Lungs and Pleura - - - -	648	201	849	2·3	1·2
Phthisis and Hæmoptysis -	251	390	641	1·7	·9
Influenza and Catarrh - -	1,305	54	1,359	3·7	2·
Cynanche - - - -	284	- -	284	·7	·3
Disease of the Heart, Functional and Organic - -	540	435	975	2·6	1·4
Hæmorrhoids - - - -	72	107	179	·4	·2
Varix - - - - -	11	41	52	·1	—
Aneurism - - - -	1	- -	1	—	—
Disease of the Stomach and Bowels - - - -	161	5	166	·4	·2
Dysentery - - - -	127	351	478	1·3	·7
Diarrhœa - - - -	875	76	951	2·6	1·4
Constipation and Colic - -	178	6	184	·5	·2
Disease of the Liver - -	149	122	271	·7	·3
Jaundice - - - -	7	52	59	·1	—

Table No. 2.—Showing the Number of Days' Sickness from each Disease, &c.—*cont^d.*

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	25	- -	25	—	—
Syphilis, Primary	1,186	465	1,651	4·5	2·4
Syphilis, Secondary	223	509	732	2·	1·
Gonorrhœa	414	8	422	1·1	·5
Orchitis	442	148	590	1·6	·8
Stricture	90	- -	90	·2	·1
Rheumatism	2,067	771	2,838	7·7	4·1
Gout	100	10	110	·3	·1
Diseases of the Bones and Joints	115	133	248	·6	·3
Inflammation of the Eyes	437	68	505	1·3	·7
Amaurosis and Cataract	45	- -	45	·1	—
Otitis and Deafness	140	35	175	·4	·2
Erysipelas	143	65	208	·5	·2
Scrofula	47	90	137	·3	·1
Bubo (*Symp.*)	435	19	454	1·2	·6
Phlegmon and Abscess	6,820	261	7,081	19·4	10·5
Ulcer	5,958	1,646	7,604	20·8	11·3
Psora	19	- -	19	—	—
Eruptions, &c.	371	114	485	1·3	·7
Dyspepsia and Debility	1,225	932	2,157	5·9	3·2
Scurvy	14	43	57	·1	—
Dropsy	7	14	21	—	—
Worms	19	9	28	—	—
Headache	275	43	318	·8	·4
Wounds and Injuries	7,115	894	8,009	21·9	11·9
Burns and Scalds	250	11	261	·7	·3
Hernia	95	- -	95	·2	·1
TOTAL	39,998	9,265	49,263	134·9	73·3

TABLE, No. 3. - - - - - - -

SHOWING the Number INVALIDED from each Ship - - - -

CAUSE of INVALIDING.	Antelope.	Assurance.	Bristol.	Dart.	Dromedary.	Espoir.	Flora.	Greyhound.
Continued and Remittent Fever	2	–	–	2	1	–	–	1
Intermittent Fever - - -	–	–	–	–	–	–	–	–
Inflammation of the Brain -	–	–	–	–	–	–	*b*1	1
Insanity - - - - -	–	–	–	–	–	–	1	–
Epilepsy - - - - -	–	–	–	–	–	–	2	–
Paralysis - - - -	–	–	–	1	–	–	–	–
Vertigo - - - - -	–	–	–	–	–	–	–	1
Inflammation of the Lungs and Pleura - - - - -	–	–	–	–	–	–	–	–
Phthisis and Hæmoptysis -	1	–	3	–	–	–	1	1
Disease of the Heart, Functional and Organic - - - -	–	–	3	–	–	1	1	–
Hæmorrhoids - - -	–	–	–	–	–	–	–	–
Varix - - - - - -	–	–	–	–	–	–	1	–
Dysentery - - - -	–	–	–	–	–	–	1	1
Disease of the Liver - -	1	–	–	–	–	–	1	–
Inflammation of the Kidneys and Bladder - - - -	–	–	–	–	–	–	–	–
Syphilis, Primary - - -	–	–	–	–	–	–	–	–
Syphilis, Secondary - -	–	–	3	–	–	–	–	–
Orchitis - - - - -	–	–	–	–	–	–	–	–
Stricture - - - - -	–	–	1	–	–	–	–	–
Rheumatism - - - -	2	–	6	1	–	1	4	2
Amaurosis and Cataract - -	–	–	–	–	–	–	–	1
Otitis and Deafness - -	–	–	–	–	–	1	–	–
Abscess - - - - - -	–	–	1	–	*a* 1	–	2	–
Ulcer - - - - - -	–	–	–	–	–	–	2	–
Dyspepsia and Debility - -	–	1	1	2	2	–	4	–
Scurvy - - - - -	–	–	1	–	–	–	–	–
Headache, &c. - - -	–	–	2	–	–	–	–	–
Dropsy - - - - -	–	–	–	–	–	–	–	–
Wounds - - - - -	2	–	3	–	–	–	2	–
Hernia - - - - - -	–	–	2	2	–	–	–	–
TOTAL - - -	8	1	26	8	4	3	23	8

a Psoas.

- - - - - - - - - TABLE, No. 3.

- - - - - employed on the WEST COAST OF AFRICA STATION.

Investigator.	Landrail.	Lee.	Mullet.	Oberon.	Pioneer.	Ranger.	Rattlesnake.	Snipe.	Speedwell.	Torch.	Vestal.	Vindictive.	TOTAL.
7	–	–	–	3	5	–	1	–	–	1	–	1	24
1	–	–	–	1	2	–	–	–	–	–	–	–	4
–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	1	–	–	–	1	–	–	–	–	–	3
–	1	–	–	–	–	–	–	–	–	1	–	–	4
–	1	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	1	–	1
–	1	–	–	1	–	1	1	–	–	–	–	1	11
–	–	–	3	–	–	–	–	–	1	1	1	–	11
–	1	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	1
1	–	–	–	–	–	1	–	–	–	–	–	–	4
–	–	–	–	–	–	–	–	1	–	–	–	–	3
–	–	1	–	–	–	–	–	–	–	–	–	–	1
–	1	–	–	–	–	1	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	–	–	3
–	–	–	–	–	–	1	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	2	2	–	–	–	–	–	–	–	3	23
–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	1	–	–	–	–	–	–	–	1	–	6
–	–	–	–	–	–	–	–	–	–	–	–	–	2
4	1	–	–	3	–	–	–	1	–	–	2	1	22
–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	1	–	–	1
–	–	–	–	–	–	–	–	–	–	–	1	–	8
–	1	–	–	1	–	–	–	–	–	–	–	–	6
13	7	1	7	11	7	4	3	2	1	4	6	6	153

b Hysteria.

TABLE, No. 4. - - - - - - - - -

SHOWING the Number of DEATHS in each Ship - - - - -

CAUSE OF DEATH.	Antelope.	Assurance.	Bristol.	Dart.	Dromedary.	Flora.
Continued and Remittent Fever - -	–	–	–	1	–	–
Intermittent Fever - - - - -	–	–	–	–		–
Yellow Fever - - - - - -	–	1	–	–	1	–
Small pox - - - - - -	–	–	–	–	–	–
Inflammation of the Brain - -	–	–	–	–	–	1
Apoplexy - - - - - - -	–	–	1	–	–	–
Inflammation of the Lungs and Pleura	–	–	1	2	–	–
Phthisis - - - - - - -	–	–	1	–	–	1
Disease of the Heart - - - -	–	–	–	–	–	1
Aneurism of the Aorta - - -	–	–	–	–	–	–
Disease of the Stomach and Bowels -	–	–	–	–	–	–
Dysentery - - - - - -	–	–	–	–	–	2
Rheumatism - - - - - -	–	–	–	–	–	1
Psoas Abscess - - - - - -	–	–	–	–	1	1
Dyspepsia and Debility - - -	1	–	–	–	–	–
Wounds and Injuries - - - -	–	–	–	–	–	–
Drowned - - - - - - -	–	–	–	1	–	–
Suicide - - - - - - -	–	–	–	–	–	–
Asphyxia - - - - - - -	–	–	1	–	–	–
TOTAL - - -	1	1	4	4	2	7

- - - - - - - - TABLE, No. 4.

- - - employed on the WEST COAST OF AFRICA STATION.

Greyhound.	Investigator.	Mullet.	Oberon.	Pioneer.	Rattlesnake.	Snipe.	Vestal.	Vindictive.	TOTAL.
–	4	–	–	2	–	–	1	–	8
–	–	–	–	–	–	1	–	–	1
–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	2	–	2
1	1	–	1	–	–	–	–	–	4
1	–	–	–	–	1	–	–	–	3
2	–	–	–	–	–	–	–	–	5
1	–	–	1	–	–	–	–	–	4
1	–	–	–	–	–	–	–	–	2
–	–	1	–	–	–	–	–	–	1
1	–	1	–	–	–	–	–	–	2
–	1	–	–	–	–	–	–	–	3
–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	1	–	–	2
	1	–	2	–	–	–	–	–	3
–	–	–	–	–	–	–	1	1	3
–	–	–	1	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	1
7	7	2	5	2	1	2	4	1	50

TABLE, No. 5.

SHOWING the Names of the SHIPS; the Average Complements, &c.; the Number of Men Sick Daily, in each Ship;

C. Commissioned. P. O. Paid off.

Rate, &c.	NAMES of SHIPS.	Where Commissioned.	When Commissioned.	Number of Guns.	Tonnage.	Horse Power.
Fourth Rate	Bristol	Sheerness	4 Oct. 1865	31	3,027	S. 600
Sixth Rate	Rattlesnake - C.	Devonport	9 Sept. 1867	17	1,705	S. 400
Sloop	Greyhound	Devonport	23 Sept. 1865	5	880	S. 200
	Vestal - C.	Devonport	26 Jan. 1867	4	1,081	S. 300
Gun Vessel	Assurance - S.C.	Devonport	11 May 1864	4	681	S. 200
	Dart	Portsmouth	27 Aug. 1866	5	428	S. 80
	Espoir	Devonport	7 Nov. 1864	5	428	S. 80
	Jaseur - C.	Sheerness	26 Aug. 1867	5	427	S. 80
	Landrail	Woolwich	17 Jan. 1865	5	427	S. 80
	Lee - C.	Sheerness	10 June 1867	5	431	S. 80
	Mullet - D.	Sheerness	5 May 1866	5	430	S. 80
	Ranger	Woolwich	1 Mar. 1864	5	427	S. 80
	Snipe - P.O.	Sheerness	8 Aug. 1863	5	431	S. 80
	Speedwell - C.	Woolwich	24 July 1867	5	428	S. 80
	Torch - P.O.	Chatham	24 Feb. 1865	5	428	S. 80
Steam Vessel	Antelope - D.	Woolwich	12 July 1866	3	650	P. 260
	Investigator - D.	Lagos	15 Aug. 1866	2	149	P. 34
	Oberon - D.	Sheerness	17 Nov. 1865	3	649	P. 260
	Pioneer - D.	River Congo	7 June 1865	–	142	P. 34
Store Ship	Dromedary - C.	Ascension	1 July 1867	2	654	S. 100
	Flora	Ascension	1 Feb. 1866	10	1,634	–
	Vindictive	Jellah Coffee	1 April 1867	2	1,758	–

TABLE, No. 5.

Cases; the Total Number of Days' Sickness on Board; the Average Number of and the Number Discharged to Hospital.

D. Returns defective. S. C. Station changed.

Period.	Average Complements.	Average Complements corrected for Time.	Number of Cases of Disease and Injury.	Number of Days' Sickness on Board.	Average Number of Men Sick Daily for Twelve Months.	Ratio per 1,000 of Average Force of each Ship.	Number discharged to Hospital.
1 April to 31 Dec.	525	395	997	12,333	33·7	85·3	49
3 Oct. to 31 Dec.	290	75	112	1,073	2·9	38·6	4
Year - -	200	200	492	5,069	13·8	69·	17
1 July to 31 Dec.	155	75	192	2,336	6·4	85·3	2
1 April to 31 Dec.	110	80	299	1,937	5·3	66·2	3
Year - -	70	70	144	1,469	4·	57·1	9
1 Jan. to 30 Sep.	80	60	90	625	1·7	28·3	3
1 Oct. to 31 Dec.	85	20	46	366	1·	50·	3
Year - -	75	75	172	1,834	5·	66·6	6
1 Oct. to 31 Dec.	60	15	46	341	·9	60·	5
Year - -	75	75	86	781	2·1	42·	7
Year - -	80	80	96	1,086	2·9	36·2	6
1 Jan. to 18 July	65	35	64	678	1·8	51·4	1
1 Oct. to 31 Dec.	75	20	29	383	1·	50·	–
1 Jan. to Oct.	70	50	104	778	2·1	42·	
Year - -	90	90	144	2,030	5·5	73·3	3
Year - -	35	35	77	1,103	3·	100·	22
Year - -	100	100	114	1,122	3·	85·7	10
Year - -	40	40	53	791	2·1	70·	4
Year - -	85	85	122	1,390	3·8	44·7	8
Year - -	95	95	142	977	2·6	27·3	
Year - -	70	70	188	1,652	4·5	64·2	9

TABLE, No. 6.

SHOWING the Number of CASES of all DISEASES and INJURIES in each

DISEASE OR INJURY.	Antelope.	Assurance.	Bristol.	Dart.	Dromedary.	Espoir.	Flora.	Greyhound.
Continued and Remittent Fever	16	59	35	25	19	22	2	44
Intermittent Fever	–	2	27	1	–	–	1	–
Yellow Fever	–	1	–	–	1	–	–	–
Small-pox	–	1	–	–	–	–	–	–
Scarlatina	–	–	–	–	–	–	–	–
Disease of the Brain	–	–	–	–	–	–	*c* 1	–
Apoplexy	–	–	1	–	–	–	–	1
Epilepsy	–	–	1	–	–	–	6	–
Paralysis	–	–	1	–	1	–	–	–
Insanity	–	–	–	–	–	–	–	–
Neuralgia	1	–	3	–	–	–	3	1
Vertigo	–	–	–	2	–	–	–	3
Inflammation of the Lungs and Pleura	–	1	16	1	1	–	4	4
Phthisis and Hæmoptysis	1	–	4	–	–	1	–	3
Influenza and Catarrh	6	9	29	11	9	7	8	83
Cynanche	1	1	17	1	–	1	2	1
Disease of the Heart, Functional and Organic	–	–	14	–	1	–	–	2
Aneurism	–	–	–	–	–	–	–	–
Hæmorrhoids	–	1	3	–	–	–	1	–
Varix	1	–	–	–	–	–	–	–
Inflammation of the Stomach and Bowels	1	–	2	–	–	–	–	3
Dysentery	–	–	–	–	2	–	4	1
Diarrhœa	9	19	48	2	9	6	2	46
Constipation and Colic	2	–	4	5	2	–	1	11
Inflammation of the Liver	–	–	1	–	–	–	2	1
Jaundice	–	–	1	–	–	–	–	–
Inflammation of the Bladder and Kidneys	–	–	1	–	–	–	–	–
Syphilis, Primary	–	2	11	2	–	2	–	4
Syphilis, Secondary	1	–	5	2	–	1	–	–
Gonorrhœa	1	–	7	–	–	2	–	2
Orchitis	–	4	7	–	2	3	2	9
Stricture of the Urethra	–	–	3	–	–	–	2	–
Rheumatism	3	10	42	7	15	4	9	23
Gout	3	–	–	–	–	–	–	–
Disease of the Bones and Joints	–	–	4	1	1	–	–	5
Inflammation of the Eyes	9	2	9	–	1	1	3	2
Amaurosis and Cataract	–	–	–	–	–	–	–	*e* 5
Otitis and Deafness	2	–	1	–	–	1	–	3
Erysipelas	*a* 1	–	5	–	–	–	–	*a* 1
Scrofula	–	–	–	–	–	–	–	1
Bubo (*Symp.*)	–	–	9	1	1	–	–	4
Phlegmon and Abscess	29	88	265	34	30	19	22	95
Ulcer	8	10	153	8	4	2	17	45
Psora	–	–	–	–	–	–	–	–
Eruptions, &c.	4	2	9	–	–	–	2	4
Dyspepsia and Debility	6	66	16	7	2	4	12	6
Scurvy	–	–	1	–	–	–	–	–
Headache, &c.	–	–	3	9	1	–	4	6
Dropsy	–	–	*b* 1	–	–	–	–	*b* 1
Worms	–	–	–	–	–	–	–	*d* 1
Wounds and Injuries	37	18	230	20	19	13	30	68
Burns and Scalds	2	3	6	1	1	1	1	3
Hernia	–	–	2	4	–	–	1	–
TOTAL	144	299	997	144	122	90	142	492

a Erythema. *b* Œdema. *c* Hysteria. *d* Tænia.

TABLE, No. 6.

Ship Employed on the WEST COAST OF AFRICA STATION.

Investigator.	Jaseur.	Landrail.	Lee.	Mullet.	Oberon.	Pioneer.	Ranger.	Rattlesnake.	Snipe.	Speedwell.	Torch.	Vestal.	Vindictive.	TOTAL.
48	13	30	15	16	24	39	4	5	14	6	46	29	14	525
1	–	–	–	–	5	–	–	1	4	–	3	2	–	47
–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	–	22	–	23
–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
1	–	–	–	–	–	–	–	*c* 1	–	–	*c* 1	–	–	4
–	–	–	–	–	–	–	–	1	–	–	–	–	–	3
–	–	1	–	–	–	–	–	–	–	–	–	1	–	9
–	–	–	–	–	–	1	–	–	–	–	–	–	–	3
–	–	–	–	1	–	–	–	1	–	–	–	1	–	3
–	–	–	1	–	–	–	–	–	–	–	1	–	–	10
–	–	–	–	4	–	–	–	–	–	–	–	2	–	11
–	–	–	–	1	2	–	1	–	–	–	1	–	–	32
–	–	–	–	1	–	–	–	1	–	–	–	–	–	11
2	4	15	–	2	11	1	1	8	4	–	10	11	31	262
–	–	1	–	–	–	–	3	3	–	–	–	1	1	33
–	–	4	–	–	–	–	–	–	1	–	–	*h* 1	2	25
–	–	–	–	1	–	–	–	–	–	–	–	–	–	1
–	–	1	–	–	–	–	–	–	–	–	–	1	–	7
–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	1	1	–	–	–	–	–	1	–	–	9
1	–	–	–	1	–	–	1	–	–	–	–	–	–	10
3	2	9	2	8	8	2	1	–	2	3	2	11	10	204
–	1	–	–	4	2	–	1	1	–	–	1	–	5	40
–	*f* 2	–	–	–	1	–	–	–	1	–	–	–	3	11
–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	1	–	–	–	–	–	–	–	–	–	–	1	–	3
4	1	1	1	1	2	–	–	5	1	–	–	–	5	38
–	–	1	–	–	1	–	–	1	–	–	–	–	–	12
2	–	2	–	–	–	2	–	3	–	–	1	–	4	26
–	–	1	–	–	–	–	1	2	–	–	–	1	–	32
–	–	–	–	–	–	1	–	–	–	–	–	–	–	6
1	–	9	–	3	7	–	11	2	4	–	2	7	15	174
–	–	–	–	–	1	–	–	–	–	–	–	–	–	4
–	1	1	–	–	–	–	–	–	–	1	–	–	1	15
1	–	2	–	–	–	–	1	2	–	–	–	–	–	33
–	–	–	–	–	–	–	–	–	–	–	–	–	–	5
–	1	3	1	–	1	–	1	–	–	–	1	–	–	15
1	–	–	–	–	–	–	–	–	–	–	–	–	–	8
–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
1	–	–	–	–	–	–	–	1	–	–	–	1	–	18
–	11	40	10	18	20	2	24	30	11	7	16	41	17	829
–	2	4	4	4	2	2	1	7	3	3	1	11	15	306
–	–	–	–	–	–	–	–	2	–	–	–	–	–	2
–	1	2	–	–	–	1	–	–	2	–	–	14	–	41
7	1	20	6	4	1	2	4	3	4	2	3	12	20	208
–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	2	1	1	2	–	6	2	4	–	4	–	14	59
–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	*g* 1	–	–	–	–	–	–	–	–	2
4	5	20	4	13	18	–	28	36	8	7	9	22	34	643
–	–	2	1	1	2	–	–	1	1	–	1	–	1	28
–	–	1	–	1	1	–	–	–	–	–	–	–	–	10
77	46	172	46	86	114	53	96	112	64	29	104	192	188	3,809

e Nyctalopia. *f* Calculus. *g* Guinea-worm. *h* Angina pectoris.

CAPE OF GOOD HOPE AND EAST INDIES.

Cape of Good Hope and East India Station.

THE squadron on this station in 1867 comprised eighteen vessels; viz., one of the fourth rate; five of the sixth rate; five sloops; three gun-vessels; three troop-ships; and one receiving ship permanently stationed in Simons Bay. The returns from nine of the vessels were for the whole year, and from the remainder for periods varying from three to six months. The mean force, corrected for time, was 2,160, and the total number of cases of disease and injury entered on the sick-list 3,724, which is in the ratio of 1724· per 1,000 of force, being a decrease, compared with the preceding year, equal to 137· per 1,000. Of these, ninety-eight were invalided, and thirty died, the former being in the ratio of 45·3 and the latter of 13·8 per 1,000. The invaliding rate is 2·1 per 1,000 above that of the preceding year; but there is a reduction in the ratio of mortality to the extent of 7·2 per 1,000. The highest sick-rates were in the Penguin and Euphrates; the lowest in the Valorous and Racoon.

The average daily loss of service from fevers was equal to about seven men, or in the ratio of 3·3 per 1,000 of mean force; from diseases of the brain and nervous system the sick-rate was ·1 per 1,000; from diseases of the respiratory organs, 3·4; of the heart and bloodvessels, ·8; of the alimentary canal, 2·5; of the liver, ·5; of the genito-urinary organs, 12·; from rheumatism, 4·2; diseases of the bones and joints, ·3; of the special senses, 1·; of the skin and cellular tissue, 16·8; from diseases not classed, 3·1; and from wounds and injuries of various kinds, and hernia, 10·8. The total number of men sick daily averaged 134·5, which is in the ratio of 62·2 per 1,000 of force, being a decrease, compared with the preceding year, equal to 9·3 per 1,000.

Fevers.—There were 238 cases of fever of a continued and remittent type; thirty-eight of ague, one of small-pox, and two

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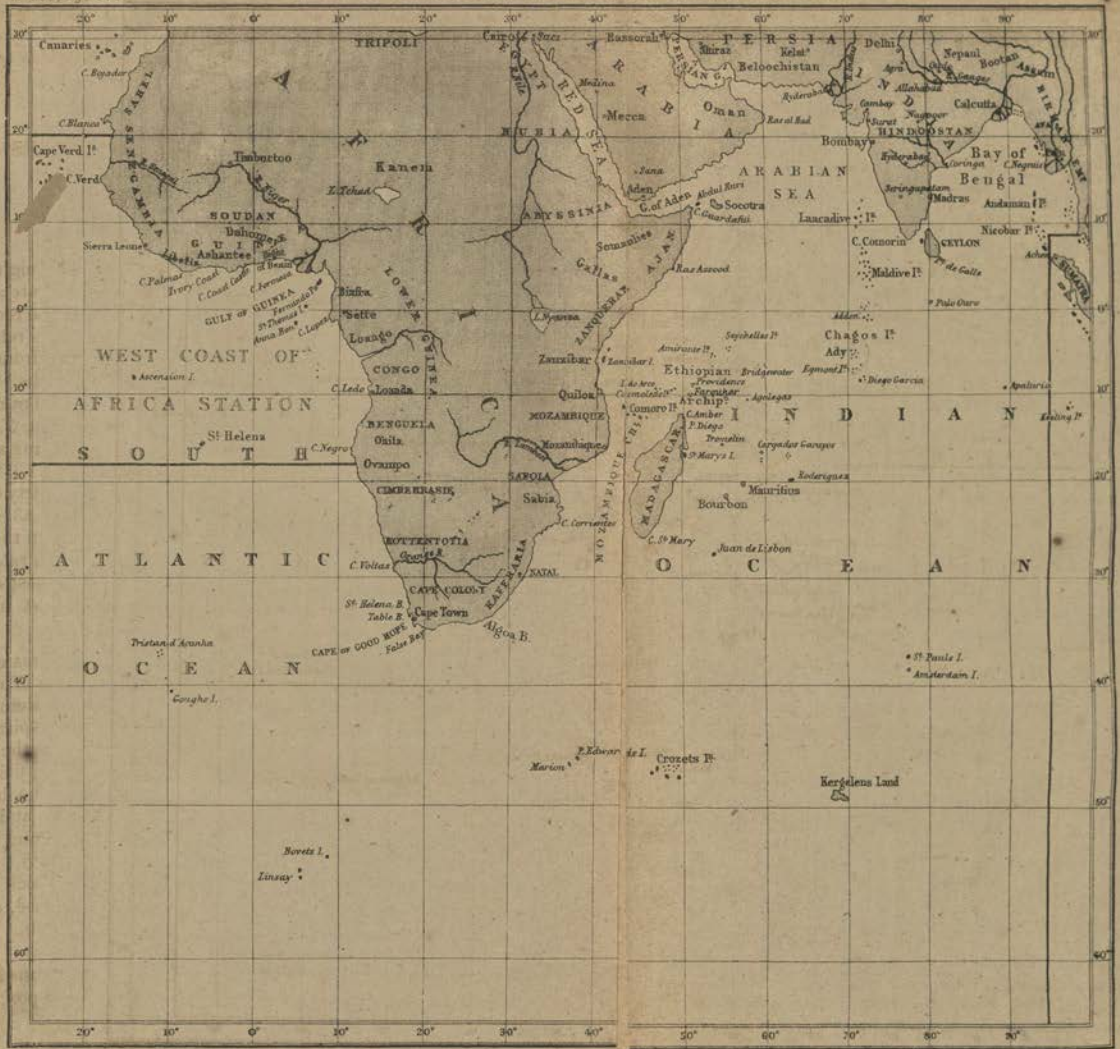
CAPE OF GOOD HOPE AND EAST INDIA STATION.



Cape of Good Hope and East India Station.

sented himself on the morning of the 21st of July, with general febrile symptoms, stating that he had been very ill for a week past. On the 22nd a typhus rash showed itself all over the trunk and limbs. The bowels were moved by an aperient on the day of admission, and not again until the 24th, and then by an enema. Stimulants were required from the first day of treatment; the urine was drawn off by the catheter. He suffered severely at times from hiccough. He sank down in the bed, and so rapid and weak was the pulse, that it could not be counted. He had low muttering delirium during the day, from the 23rd onwards. There was very great debility, oppression, and stupor; mustard plasters to the calves and thighs seemed from time to time to rally him. Sometimes there was difficulty in getting him to swallow. He was beginning to improve, when he was discharged to the hospital at the Cape of Good Hope, where he made a good recovery. The surgeon* of the vessel, in remarking on the case, observes that the man joined the vessel at Birkenhead on the 24th of May, and that he had not been out of the ship until he was sent to hospital on the 26th of July:—

"He must have brought the infection on board with him; and, as it was so long in developing into active disease, the probability is it never would have done so had he not suffered excessive fatigue and debility, induced by very heavy work."

The idea that he brought the disease on board with him is, however, open to grave doubt. Dating the first development of the fever from the 14th of July, which was a week before he presented himself to the medical officer, and during which time he said he had felt very ill, the period of incubation would be something like fifty-two days. This appears to be longer than the best authorities are disposed to admit as the possible period of latency of this disease. Murchison† says:—

"On the other hand, cases of extreme protraction of the period of incubation must be viewed with some suspicion. I know no reliable case where it has extended beyond three weeks. Few, at all events, will agree with Bancroft in the opinion that an interval of five or six months may elapse between exposure to the poison and the commencement of the disease, an opinion to which he was forced by his determined opposition to the possibility of a spontaneous origin of the fever."

Few

* Surgeon S. A. Willis, M.D.

† A Treatise on the Continued Fevers of Great Britain, by Charles Murchison, M.D., p. 90.

Few in the present day, however, will doubt the possibility of the spontaneous origin of typhus fever; and although the old ship or Jail fever is now happily almost altogether unknown in the Royal Navy, excepting, and that rarely, as a result of infection, there can be little doubt that a recurrence to over-crowding, defective ventilation, and an innutritious diet would exert the same influence at the present time as they did in the days of Lind and Sir Gilbert Blane, when typhus fever was very common in our ships, and not unfrequently made its appearance in vessels several weeks after they had been at sea. A case of typhus fever, of spontaneous origin, in one of our ships of war in the present day can only be of the very rarest occurrence; but the depressed state of the vital powers, induced in this man by excessive fatigue and debility, resulting from very heavy and exhausting work; work, moreover, attempted to be carried on for days after he became ill, was just of such a nature as would be readily productive of a low form of fever. That the disease did not spread was doubtless attributable to the admirable manner in which the ship was ventilated, and to the facilities she possessed for isolating the man.

There were thirty-one cases of primary fever in the Highflyer. They were not of much importance, being for the most part examples of simple continued fever, or febricula.

During the Christmas quarter of the year, when the Jumna was a good deal employed in the Red Sea, sixteen cases of primary fever occurred on board, all of which are returned as being of the continued type. They do not appear to have been of much severity as a rule, but convalescence was in many cases protracted by long-continued debility, accompanied in some with palpitation.

There were twelve cases of primary fever in the Lyra, of which eleven are classed as ephemeral, and one as remittent. The surgeon* makes the following remarks on the cases which occurred in the Midsummer quarter of the year:—

"There were seven cases of fever, of which six were ephemeral and one remittent. As usual, the former were very trifling, the average duration of each case being only four days. They were chiefly contracted during the first half of the quarter, from the 1st of April to the 14th of May, and generally in those employed on detached

* Surgeon Robert Edwardes.

Cape of Good Hope and East India Station.

detached boat service, off the islands of Zanzibar and Pemba and the opposite coast, for the suppression of the slave trade, when they suffered from exposure to sun and rain. It is likely enough, however, that had they remained on board, they would have suffered in the same way when the weather was equally inclement.

"The case of remittent fever was for some time of a serious character. It occurred in the person of one of the carpenter's crew who had been employed for some time on shore, working at the English Mission House, which is situated in a very unhealthy part of the town. When admitted to the sick-list he appeared to be suffering from a catarrhal affection, accompanied with fever, and at times with pleuritic pains. There was great debility at the onset of the attack, but no headache, as is generally the case. Subsequently the inferior lobe of the right lung became congested. While convalescing he had a relapse which materially retarded the progress of the case, and left him in a weak and debilitated state."

There were twelve cases of primary fever in the Malabar, all of a trifling character.

In the Nymphe, which only arrived on the station in the Christmas quarter of the year, there were six cases of primary fever, of which five are classed as febricula, and one as continued. The latter is said to have been a case of typhus fever, occurring in a Marine, who having broken his leave, remained all night on shore at Simons Town, where he is supposed to have contracted the disease. The eruption and head symptoms were, it is stated, well marked, but no other particulars in connection with the case are given. The man was thirty-nine days under treatment.

There were twenty-two cases of primary fever in the Octavia, eighteen of which are classed as febricula, and four as remittent. Each case of febricula was, on an average, four days, and each case of remittent fever eight days, under treatment. One of the latter proved fatal. It occurred in the person of an officer's domestic, a weakly, sickly Indo-Portuguese, who was taken ill in one of the low quarters of Bombay, where he is supposed to have contracted the disease, and where he remained until his death. The other cases seem to have been of little or no importance.

There were seven cases of primary fever in the Penguin, five being of the remittent type, and two febricula. The medical officer* says:—

"The diseases occurring in the ship during the last nine months, with

* Assistant Surgeon William Graham.

Cape of Good Hope and East India Station.

with the exception of three cases of remittent fever of a mild form, were of the usual variety. The fever commenced with one of the carpenter's crew on the 13th of August; the next case occurred on the 19th, and the last on the 21st, the day of our arrival at Seychelles. At Zanzibar the ship had lain at anchor from the 2nd of July until the 11th of August. The weather was showery, the thermometer 74° and 78°, and the winds south-westerly, with a force of two to four. The town had been very healthy, but small-pox now began to rage, and many of the native population were being carried off by it.

"Most offensive sulphuretted odours arose from the beach every morning and evening when the tide receded, so that we were obliged to anchor further off from the shore.

"The symptoms of all three cases were much alike, commencing with chills, headache, nausea or vomiting, lumbar pains, followed by heat of surface, flushed face, frequent pulse, furred tongue, and loss of appetite. Remissions were fairly marked in two, commencing about seven or eight o'clock in the evening, and lasting till about 4 o'clock the next morning. A native of Mauritius, taking passage to Seychelles, after a few days at sea had aguish symptoms, but recovered after a couple of doses of quinine. He said that he had had fever once at Zanzibar.

"Although I am of opinion that these cases would have benefited by the continuation of the saline treatment *per se*, yet I believe that quinine hastened their convalescence, and very likely insured them against a return of the disease."

In the Peterel there were nine cases of primary fever, one of which proved fatal. Four of the cases were of a comparatively trivial character, but the remaining five, all of which occurred in the Christmas quarter of the year, were of considerable severity, and markedly enteric. The only information as yet received in connection with these cases is of a very meagre description. The surgeon* of the vessel, in his quarterly nosological return for the period, says:—

"Five cases of fever of a typhoid remittent character, differing in no respect from the disease which has for some time been prevalent in Cape Town and Simons Town, were entered on the sick-list. The cause of the outbreak I attribute to the men having been exposed to contagion when on leave. The fever was ushered in with the usual premonitory symptoms, viz., rigors, pain in the limbs and back, headache, and nausea. The head symptoms showed themselves early, and in all cases there was suffusion of the eyes with conjunctival inflammation. The characteristic spots, with intestinal complication, were also present, but there was generally an exacerbation

* Surgeon J. N. J. O'Malley.

Cape of Good Hope and East India Station.

exacerbation of the febrile symptoms towards the evening, with a decided remission in the morning."

The fatal case occurred in the person of a petty officer, who was placed on the sick-list on the 31st of October labouring under a considerable amount of febrile disturbance with diarrhœa. He stated that he had been unwell for two days previous to his applying for medical assistance. As his symptoms soon assumed a serious aspect he was sent to the Naval Hospital at the Cape, on the 5th of November. On admission he was restless, with wandering delirium and subsultus tendinum. There was great nervous prostration, and it was necessary to empty the bladder by means of the catheter. No improvement took place in his symptoms; on the contrary, the tongue became dry and glazed, the teeth were covered with sordes, and there was great tremor of the hands and tongue. A rose-coloured eruption appeared over the abdomen, and there was tenderness over the right iliac region. In this state he continued, gradually becoming weaker, until the morning of the 12th, when he died. The report of the post-mortem examination of the body is exceedingly meagre, but the principal morbid appearances were found in the intestines.

In the Racoon, which only arrived on the station at the end of the Midsummer quarter of the year, there were twenty-seven cases of primary fever, twenty-six of which are classed as continued and one as remittent. With the exception of the remittent case they appear to have been all of an exceedingly ephemeral character, the average duration of each case being little more than two days. They occurred chiefly after exposure at Zanzibar, and were in most instances accompanied with catarrhal symptoms and gastro-intestinal irritation: they were attributed to insolation for the most part. The case of remittent fever occurred in the person of a stoker who had accompanied the Expedition up the Zambesi in search of Dr. Livingstone. The party composing the Expedition embarked on board the Racoon at the Kongoné mouth of that river, up which and the River Shire they had been for four months, enduring great fatigue and exposed to great solar heat, without a single case of sickness occurring amongst them. After leaving the Kongoné for Simons Bay several members of the Expedition experienced rigors and slight threatenings of a febrile paroxysm, but being promptly treated they were speedily checked. On the seventh day the stoker was seized with febrile symptoms of great severity. It appears

appears that he was the only member of the party whose constitution was enfeebled by previous disease, he having suffered from dysentery. He had also been left behind for a few weeks in charge of stores at a village, and while there had indulged in some amount of debauchery. On the fourth day of the attack a copious eruption of urticaria appeared on the thighs and arms, which disappeared on the following day. On the sixth day he became insensible, and remained so for some time. He had had occasional hiccough before this, but that symptom now ceased. On the 7th day he was less somnolent, he could be roused, and answered questions in monosyllables. On the eighth day he was decidedly better, and on the following day, the vessel having arrived in Simons Bay, he was discharged to the Naval Hospital there, improving, but very weak. He subsequently made a good recovery.

Although none of the cases of fever occurring in the Racoon had any connection with the epidemic which prevailed so extensively in Cape Town and subsequently in Simons Town, the surgeon* gives the following information with respect to the epidemic:—

"As regards the virulent epidemic of fever that has existed in the colony—for it has spread, or rather has co-existed in the other large towns—it commenced to show itself on the 15th of August at Simon's Town, having prevailed in Cape Town since June, in which latter place, with the large population of 28,457, it made much way, and was for the most part of the low continued type. A few cases struck me as being possessed of the characters of cerebro-spinal meningitis. Co-existent with the epidemic at Mauritius, it did not, however, appear to present the character of that fever, which has hitherto been presumed to have been of malarious origin, remittent, for the most part, which in this place could not possibly exist. There were no remittent cases in the fever here. It was, as before stated, of a low continued character. As a rule, there was no diarrhœa, and no maculæ. There *were*, however, a few typhoid cases, and a few of typhus. . . . . With respect to the diagnostic symptoms of this fever of the Cape, it commenced with a sense of langour, malaise, and weariness; rigors; headache, increasing in intensity and persistent (a most marked symptom in all). The pulse was full; the bowels confined; the tongue furred, becoming brown in low or long-untreated cases; prostration; occasional delirium; and very great nervous irritability at times (meningitis?), with a great tendency to passive congestion of organs. The average duration of the cases was ten days. Convalescence commenced

* Surgeon Pierce Mansfield, B.A., M.D.

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commenced about the fifth or seventh day, and was then rapid. The patients were well supported from the first, and quinine was freely administered. Deafness characterised many cases, but I think frequently as a result of cinchonism. I regret that our absence from the Cape from the 7th of October to the 17th of December has prevented me seeing more of the progress of this important and interesting epidemic, so as to enable me to give more full information in connection with it; but for the sake of the health of the ship's company, it was evidently fortunate that they were away from fever of this type. I have, however, succeeded in obtaining the statistical return of the hospitals for the half year from the 1st of July to the 31st of December, arranged in a tabular form."

It does not appear necessary to give the long Table which is furnished by this officer in his journal, the analysis of which, however, is as follows:—

	Admitted.	Died.
"New Somerset Hospital - - - -	732	110
Old " " - - - -	568	81
Total - - -	1,300	191

Mortality, 14·69 per cent."

He adds:—

"The above statistical numbers will speak for themselves, and indicate people from the filthy 'slums' of the town. The soldiers or garrison, numbering within a few of 2,000, had but two deaths from fever during this period, and the convict establishment of 900, no case at all."

There were fourteen cases of primary fever in the Satellite, all of which are classed as remittent: they occurred during the Christmas quarter of the year, during most of which period the vessel was employed in the Red Sea at Annesley Bay, in connection with the Abyssinian Expedition. With reference to the cases of fever that occurred at this time, the surgeon * observes:—

"In the fever which came under observation during the first part of the Abyssinian campaign, the symptoms were decidedly of the remittent type, being a disease of daily exacerbations and paroxysmal accessions, with subsequent diminution of the temperature, nervous tension, and strength. There was, however, no strongly marked periodicity in the recurrence of the paroxysms, nor in the subsequent loss of general power in the system.

"The

* Surgeon J. N. Dick.

The chief symptoms which showed themselves were severe and throbbing frontal headache, most distressing pain of back and inner sides of thighs, with some gastric irritation, but the latter symptom was on the whole slight. The tongue was at first dry, and covered with a dirty brownish fur, there was considerable thirst, aching of the eyeballs, sickness of stomach and confined bowels, very frequently accompanied with griping pains across the epigastrium; the pulse generally above 100, the face flushed, and the skin dry and burning.

"As the disease progressed, in the paroxysmal exacerbations which most usually occurred in the evening, there was a well-marked accession of fever, and aggravation of all the symptoms; the face became more flushed, the skin dry and hot, the eyes bloodshot, and intolerant of light from the aching sensation produced by its rays. The pulse rose, the mouth became parched, the tongue contracted in volume, pointed, dry, and cracked; the headache was intolerable, and the thirst intense. After lasting for a few hours, during which the patient was restless and sleepless, the increase of fever gradually passed off, the early morning finding him with a weakened pulse (96), tongue moist, skin covered with perspiration, and temperature cooler; tolerance of light, less headache and thirst, but the nervous tension and tissue metamorphosis diminished. As has been mentioned above, there was but slight gastric irritability; no tenderness on pressure over the abdomen, and but little tympanitis, the bowels acting freely without falling into a state of diarrhœa.

"The treatment adopted in these cases was, clearing out the stomach and bowels on the patient's first presenting himself. Salines were afterwards prescribed, whilst in the remissions quinine in large doses, with beef-tea, strong soup, and a liberal allowance of wine, brought them to a successful termination."

There were sixteen cases of primary fever in the Seringapatam, two of which proved fatal. With one exception they all occurred during the Christmas quarter. Fourteen are classed as continued, and two as ephemeral. The information given in the returns from this ship in connection with these cases is of the most meagre description, but it would appear that the disease was of the same character as that which was prevailing epidemically on shore at the time, and that all the persons attacked were Kroomen.

There were only five cases of primary fever in the Star, and four of these were of a trifling and ephemeral character. The fifth was a case of continued fever, in which the spleen became affected. It was of thirty-eight days' duration.

Two cases of primary fever occurred in the Vigilant. One was of the remittent type, the other ephemeral; neither was of any mportance.

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There were seventeen cases of primary fever in the Wasp, all of which are classed as remittent. Fifteen of the cases occurred in the Lady quarter of the year, and were distinctly traceable to exposure to malarious influences, as detailed in the following narrative by the surgeon* of the ship.

"On the 20th of December 1866, at 2 a.m., a party from this ship, consisting of two boats' crews, viz. the galley and cutter, with the captain, myself, and six men in the former, and the master, a midshipman, and thirteen men in the latter, left for Kokotomey, which we reached at 12, noon, after being subjected to a very severe squall of wind and rain, during which the boats and every-one in them were deluged with rain, the boats half filled, and every article of clothing wet through. On arriving at our destination the captain and I landed, and took up our quarters on shore, putting up at the house of the proprietor, which is situated on the top of a hill about 150 feet above the level of the sea. The crew of the galley landed, and were accommodated in a house on the level, and near the beach or landing-place, as the boat was too small for them to sleep in; but the officers and men of the cutter slept in their boat under an awning, and anchored some distance from the shore at night, landing during the day to cook their rations, and to exercise. We remained there two days, during which the sun was either intensely hot, or it was raining very heavily; and on the 22nd, at noon, we left to return to the ship, which we reached the following morning. On the 2nd of January the coxswain of the galley was seized with remittent fever, and by the 4th the captain, myself, and the entire galley's crew were in cots, with a rather severe form of remittent fever. Since then several of us have had secondary and tertiary attacks of the same complaint, while none either of the officers or men belonging to the cutter have suffered in any way from the effects of the expedition. If, however, the stay there had been longer, it is very probable that they would all have suffered. At Kokotomey the ground is flat, low, and moist, the soil rich, and almost swampy after heavy rain, which they had been having for some time before our arrival. I took quinine and other medicines with me when I left the ship, but they were completely destroyed by the rain."

Small-pox.—There was a single case of small-pox in the Highflyer. It occurred in the person of a Krooman, and no information whatever is given in connection with it.

Measles.—Two cases of measles occurred in the persons of officers of the Jumna. The disease was brought on board by troops from Calcutta, and was of an unusually severe nature.

* Surgeon William Anderson.

nature. Ten or twelve cases occurred amongst the troops and the officers' families, and one case, occurring in the person of a lady, an officer's wife, proved fatal.

Diseases of the Brain and Nervous System.—There was an increase in the ratio of cases and of invaliding coming under this head, compared with the preceding year, but the death-rate was much lower. Of fifty-one cases entered on the sick-list, nine were invalided and two died. Four of those invalided were the subjects of epilepsy.

A case of rheumatic meningitis, apparently, occurred in the person of a hired stoker of the Malabar, and proved fatal in Haslar Hospital. Very little information, however, has been obtained in connection with the case.

A fatal case of heat apoplexy occurred in an assistant engineer of the Highflyer. When on watch, the ship being under steam at the time, he complained of feeling faint, and had to be relieved. It appears that he went to the bath-room, and remaining there an unusually long time, a brother officer went to look for him, and found him lying insensible. Every effort was made to restore him to consciousness, but without effect, and he died in about two hours after being attacked. He was a large heavy man, weighing about twenty stone, of a pale anæmic countenance, and with a short thick neck.

Of three cases of delirium tremens that were under treatment in the squadron, one occurred in a petty officer, and two in Marines.

Diseases of the Respiratory Organs.—There was a slight increase in the ratio of cases, and in the death-rate, under this head, compared with the previous year, but the ratio of invaliding was lower. Three hundred and thirty-five cases altogether of these diseases were under treatment, of which nine were invalided, and six proved fatal.

Catarrh was somewhat prevalent in the Octavia. It was supposed to be attributable to the rather chilling north-east winds met with during the ship's voyage from Calcutta to Trincomalee in the first week of January, and from the latter port to Bombay during the last fortnight of that month. The disease was of an exceedingly mild type, the average duration of each case being only three days.

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Diseases of the Heart and Bloodvessels.—There was an increase in all the ratios coming under this head, compared with the preceding year. In the ratio of cases the increase was equal to 8·8 per 1,000, in the invaliding to 5·5, and in the mortality to ·8. Most of the increase resulted from functional disease of the heart, occasioned by the enervating effects of climate.

There were two deaths from disease of the heart. One of these occurred in the person of a seaman of the Highflyer, and was complicated with some peculiar symptoms. He was placed on the sick-list on the 5th of May, complaining of difficulty of breathing and of palpitatoin. He stated that up to that time he had enjoyed excellent health, with the exception of an attack of acute rheumatism, since which he had had intermittent attacks of palpitation, never, however, so severe as to incapacitate him for duty; that his father and mother were alive, but that his sister had died of "decline;" that the attack under which he was then labouring he considered to be due to his sleeping on the damp deck during his watch; that it came on insidiously; that the first thing to arrest his attention was a cough on getting out of bed in the morning; that he had lost a good deal of flesh; that he perspired a good deal at night; that he could not take a deep inspiration without a sharp pain over the left shoulder; and that he had frequently expectorated blood. The physical signs, as far as the lungs were concerned, gave evidence of advanced pulmonary consumption. On examination of the cardiac region, the apex of the heart was found to be lower and more to the left than usual; percussion did not elicit any evidence of enlargement, but auscultation disclosed two murmurs, one with either sound; that with the first loudest towards the apex, that with the second best heard at the base, but not so well marked, nor so easily recognised as the one accompanying the first. The heart's function appeared to be much impaired, and the pulse was small, irregular, and abrupt. There was considerable gastric irritability, but no abdominal tenderness. Headache and vertigo caused much uneasiness. The violence of the heart's action was greatly complained of, more so even than the oppressed breathing, which, ordinarily severe, was increased on assuming the recumbent posture. Hæmoptysis occasionally occurred, and appears to have been readily checked, but the profuse nightly perspirations were much more difficult to control. A large vomica formed in the apex of the left lung, and

and as time ran on the heart's action became much obscured by the murmurs having assumed a rasping character, the pulse ranging about 90, the right being more compressible than the left, which was abrupt and cordy. On the 22nd of July, after a severe attack of vomiting and hæmoptysis, he was found in a state of insensibility; the pulse was small and circumscribed; for a few seconds absent altogether; the skin hot and burning; the pupils dilated; and the breathing stertorous. He had been spoken to a few minutes before he was found in this condition. Under the treatment to which he was subjected an amendment took place in his symptoms in an hour or two, but there was no decided improvement until the morning of the 23rd, when the pulse, though weak, was softer, the skin moist, the efforts at respiration not so intense, the pupils more natural; while he seemed to recognise, although unable to address, his attendants. On the 23rd and 24th he went on slightly improving, but on the 25th he was not so well, and complained of intense pain in the left side of the head. On that day there was paralysis of the third nerve, evidenced by the drooping eyelid; the pupil was dilated, and there was slight external strabismus. The right pulse was soft and compressible; the left sharp, abrupt, and cordy. Memory and powers of recognition gone. On the 27th the peculiarity of pulse and the strabismus were better marked, and delirium was nearly constant. On the 29th he died.

The medical officer*, from whose detailed report the above abridgment has been made, makes the following remarks on this case:—

"On this case I will make no comments further than that the valvular disease of the heart, the result of acute rheumatism, seemed—indeed from the history of the case was—the primary malady leading to the pulmonary congestion and pleurisy, which proved the exciting causes of a disease already in the family. From the generally laboured action of the heart I am inclined to suspect an adherent pericardium, the patient remembering that the medical man in charge of him, when the subject of rheumatism, paid a good deal of attention, by examining that region frequently, as well as applying several blisters. Were the changes on the 22nd of July, the brain symptoms, the paralysis of the left 3rd cerebral nerve, the intense pain on the side of the head, the total loss of memory, the difference in the pulses, &c. &c., in any way due to a vegetation or vegetations (rheumatic

* Assistant Surgeon A. G. Robertson, M.D.

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(rheumatic carditis) carried by the force of the circulation from the left side of the heart to the brain? Did they (the vegetations) cause white softening? Would paralysis have ensued?

"He was buried on shore at Pomony (Island of Johanna) just before we went to sea, on the day he died, thereby preventing a confirmation of opinion by post-mortem examination."

The other fatal case of heart disease occurred in the person of a petty officer of the Octavia. He was a well developed, healthy-looking man, of steady and temperate habits, neither drinking nor smoking to excess, and he stated he had never suffered from rheumatism, nor from palpitation. He had, however, been working very hard for several days previous to being entered on the sick-list, caulking ship, and he admitted that he was sensible of having caught several severe chills by imprudently sitting in his damp clothes after perspiring freely at his work. When entered on the sick-list on the 26th of January, he complained of weakness, tremors, headache, and general pains, referred chiefly to the chest. The pulse was very irregular, intermitting for a full interval between every third and fifth beat, usually, the number of pulsations varying from 72 to 80 in the minute, their character being weak and soft. No abnormal cardiac brûit nor increased dulness could be detected, and the lung sounds were normal. His skin was warm and moist, and the tongue clean. He was placed in a cot, and treatment was mainly directed to the re-establishment of his strength by rest, comfort, and the improvement of his digestive system by mild tonic aperients and careful dieting. But although his appetite improved slightly, and he did not complain of anything further than of frequent eructations, and of almost constant uneasiness (not amounting to pain, however) in the præcordia, the feebleness, irregularity, and intermittent character of the heart's action continued, and the weakness increased daily. The mere effort to get up to stool produced alarming symptoms of syncope, and a bed-pan was therefore ordered, and effervescing draughts of soda and citric acid, with scruple doses of aromatic spirits of ammonia given every three or four hours. The breathing continued easy and of normal frequency, and the system free from all febrile disturbance, but the circulation gradually grew weaker, the extremities became chilly on the 4th of February, and death by failure of the heart's action, and without an apparent pang or struggle, took place on the 5th of February, although brandy and other stimulants were freely given as long as he could be induced to take them.

Post-

Post-mortem examination showed great congestion and enlargement of almost all the viscera, the heart being one pound in weight, and the walls of the left ventricle over an inch in thickness, the hypertrophy being eccentric. The liver weighed 6 lbs., and was intensely congested but otherwise healthy. The spleen weighed 2 lbs., and was also greatly congested, but of normal consistency; the kidneys 12 oz., also congested, but apparently healthy otherwise. The lungs, pleura, pericardium, and stomach appeared quite healthy; and no alteration in the capacity of the chambers of the heart, nor any organic disease of its valves, could be detected.

The surgeon* of the ship, who furnishes the above history, adds:—

"I am therefore disposed to attribute the death to hypertrophy of the heart generally, but chiefly of the left ventricle, with degeneration of its minute tissues, although, I regret to say, I was not able to verify the hypothesis by microscopic examination."

Diseases of the Alimentary Canal.—There was a reduction in the ratio of cases and of mortality under this head, compared with the preceding year, but the invaliding rate was a little higher. Of 335 cases of disease entered on the sick-list, eight were invalided, and one proved fatal. The fatal case was one of acute dysentery. It occurred in the person of a petty officer of the Highflyer who had previously, he stated, suffered severely from the disease in China. The exciting cause of the fatal attack was considered to have been a chill to the surface, caught while in his hammock near the hatchway, as symptoms of catarrh were prominent when he presented himself for treatment.

There were sixty-five cases of diarrhœa in the Octavia, but they do not appear to have been of much importance, as no allusion is made to them by the surgeon of the ship. In the Satellite and the Star, in each of which vessels there were thirty-five cases of diarrhœa, the disease prevailed chiefly in the Christmas quarter of the year, and was attributed to atmospheric changes in the Red Sea. There was no great number of cases in any of the other vessels of the squadron.

There were nine cases of painter's colic in the Seringapatam. The disease appears to have been contracted while the men were

* Surgeon Doyle M. Shaw.

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were employed repainting some of the dockyard residences, and the prevalence of the affection is said to have been attributable to the fact that the insides of the rooms were painted "dead white," which is composed of zinc white and turpentine, with very little oil, and is said to evaporate very quickly. Many precautions were taken to obviate the risk the men ran of being affected by the poison, but it appears without avail.

Diseases of the Liver and Spleen.—There was a trifling reduction in the ratio of cases coming under this head, compared with the previous year, but the invaliding rate was the same. Of sixteen cases of disease of the liver, six were invalided.

Diseases of the Genito-Urinary Organs.—There was a slight increase in the ratio of diseases coming under this head, compared with the preceding year, but the invaliding rate was somewhat lower, and they occasioned no mortality.

Venereal diseases appear to be very prevalent at Bombay, so much so, that in consequence of the number of cases that occurred amongst the ship's company of the Octavia, the commodore called upon the surgeon of the ship for a special report upon the subject, from which the following extract has been taken:—

"Agreeably with your order, that I should furnish you with a statement as to the number and nature of the cases of venereal disease that have occurred in this ship, in consequence of contagion to which the men have been exposed while on leave at Bombay, during about three weeks of last year and two of this, and with my written opinion as to the best means that could be taken to check the spread of the disease in future, I have the honour to inform you as follows:—

"I. That the total number of cases has been sixty-eight, of which fifty-one have been of a specific syphilitic character, (one* of which proved fatal in the case of a naturally delicate and weakly boy, who was only on leave for a few hours); and three of which have been followed by serious secondary symptoms.

"These numbers are comparatively small to those that have often been presented by our large ships in home and other ports, but still they have caused an aggregate loss of 1,565 days' service during the last fourteen months, and will probably cause a further loss of at least

* *See* Statistical Report of the Health of the Navy for the Year 1866, p. 280.

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least 200 days before the sixteen cases that still remain under treatment are able to return to duty.

"I am unable to state positively to what extent the other vessels of the squadron under your command have suffered from the same scourge, as I have had no opportunity of seeing their Medical Returns, but I have every reason to believe that they have suffered in a considerably higher ratio than the Octavia.

"I have therefore, as you are aware, considered it my duty to represent to you the expediency of moving the authorities at Bombay, Madras, and Calcutta, to enforce the 'Contagious Diseases Act,' which, originally passed in the early part of 1865, has been since October last put in operation in an extended and more stringent form at most of our principal Home ports.

"Under this Act the police have the power within a given district to compel any woman known to be a prostitute, and suspected of being diseased, to submit to a medical examination by a regularly appointed examining medical officer. Women thus found to be diseased are conveyed by the police to hospital, and are there compulsorily detained until they are certified as cured by the surgeon in charge of them, and any woman leaving the hospital without the certificate of the surgeon is liable to be taken before a police magistrate, and sentenced to imprisonment.

"It has been found that the women of the town already understand that the measure is intended for *their* benefit, as well as for that of the rougher sex, and that they readily submit to examination when called upon to do so, and gladly avail themselves of the arrangements made for their cure, many having presented themselves for examination of their own accord. While the beneficial results to the troops and naval force stationed at Plymouth, Devonport, and Stonehouse, have been proved by official returns, showing that the amount of venereal disease among those two bodies of men has, during the last quarter of last year, been less by one-half than it has ever been before.

"Similar and even more marked beneficial results have followed the enactment of similar laws of supervision of prostitutes, for many years past in the garrison towns of France and Belgium, and also very notably among our own regiments and ships at Malta and Corfu during the year 1862; and indeed wherever and whenever such laws have been carefully, strictly, and judiciously carried out. While the need of some such regulations has long been felt and admitted in all our garrison towns, but has everywhere been opposed by ignorance, cant, fanaticism, or feelings of mistaken delicacy, they have no sooner passed into a system and law of the land, than they have at once been acknowledged to be a benefit to society in general, as well as to the unfortunates more immediately concerned.

"But, as you have yourself remarked to me, it is in connection with the men of the mercantile marine in Indian waters that the importance of some protective act assumes its gravest form, for while they no doubt as readily give way to the temptations that openly and almost unavoidably beset *them*, as well as men-of-war's men at Bombay, Madras, and Calcutta, they in a great majority of cases

 lack

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lack that medical care which men-of-war men at any rate have *after* they have fallen victims to their vice or their folly, and which alone can obviate the dire consequences that must result from neglected disease of such a loathsome and virulent nature as syphilis. And it is therefore even more as a measure of humanity toward them, than as one beneficial to the squadron, that the adoption in India of the said 'Contagious Diseases Act' is called for; that Act being the only practical measure as yet known by which our soldiers and sailors can be defended against the mischievous effects of the evidently ineradicable as well as inevitable great 'social evil'; by which the efficiency of our Army and Navy as well as the well-being of the community at large, is so injuriously affected."

During the year 1867 there were forty-four cases of primary syphilis in the Octavia, thirteen of secondary syphilis, and twenty-six of gonorrhœa, giving an aggregate loss of service on board ship of 1,819 days, which does not indicate the total loss of service, as several of the cases were sent to hospital.

Venereal diseases on this station appear to abound at Bombay, the Seychelles, Tamatave in Madagascar, and at Simons Town and Cape Town. Some effort was being made in 1867 to introduce a "Contagious Diseases Act" into the latter colony, but with what success is not stated.

Diseases of the Special Senses.—There were fifteen cases of hemeralopia in the Octavia, twelve of which occurred during the Midsummer quarter of the year. No reference is made to these cases in the returns from the vessel, but it may be remarked as to their probable exciting cause, that during the first two months of the quarter, the vessel experienced very trying weather in her voyage from Bombay to Muscat, and from thence to Trincomalee *viâ* Aden, the heat being stifling in the Persian and Aden gulfs; that she encountered the full force of the south-west monsoon on the 26th of May, the day after passing Socotra, on her way southward, whereby, for nearly a week, her decks were deluged with water; and that during the quarter, the ship's company were fifty-six days on salt provisions. This combination of depressing influences may account for the unusual prevalence of this affection.

Diseases not Classed.—A Krooman of the Octavia died of dropsy in the hospital at Trincomalee; he was a tall and very powerfully-built man, who had previously, apparently, been in the enjoyment of robust health; he was placed on the sick-list, complaining of loss of power in the lower extremities, more particularly in the knee and ankle joints of the left leg. There

There was no constitutional febrile excitement, and his general health seemed good; but the left leg was slightly swollen from the knee to the toes, and its temperature was sensibly, though not very highly, elevated; the case seemed to be one of sub-acute œdema. In a few days he ceased to complain of pain, and the heat of the leg subsided, but general anasarca gradually set in, beginning first in the left leg and thigh, and then slowly spreading over the abdomen, chest, arms, and face. Three months after being entered on the sick-list, a bulla formed over the dorsum of the left foot, and bursting spontaneously, gave exit to such a large quantity of serum that for several weeks the areolar tissue all over the body was drained. The dread of gangrene, or the development of maggots in the ulcerated flesh, was so constant a source of anxiety as to render it desirable that the healing of the sore should be encouraged; this was accordingly attempted, but with very imperfect success. Several bullæ formed on the right foot and burst, giving exit to a constant flow of serum. All this time the general health continued good; he always slept well, and his appetite never failed. The urine was abundant throughout, of acid reaction, and free from albumen, and no symptoms of enlargement of the liver or spleen ever showed themselves; nevertheless the general anasarca steadily increased; the legs, arms, chest, and face became universally œdematous, while ascites increased until the circumference of the abdomen measured fifty inches. On examination of the heart, its action was found to be very languid though regular, and a soft bellows murmur was occasionally audible with the first sound; no abnormal cardiac dulness could be detected, and the lungs were healthy. In this condition he was sent to the hospital at Trincomalee, where he died five days afterwards. No improvement took place in any of his symptoms in hospital; his appetite continued good to the last, but he ultimately sank exhausted. Unfortunately no examination of the body appears to have been made after death.

A death from debility also occurred in the same vessel, in the person of an old worn-out bandsman, whose naturally feeble constitution had been undermined by long-continued habits of intemperance. He was placed on the sick-list for the effects of a drinking bout at Bombay. Every effort was made to rally him from the excessive debilitated condition into which he had fallen, but without success. Although he took considerable quantities both of food and wine, his weakness steadily increased, and ultimately carried

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him off. During the year he had had two very severe illnesses, one of double pneumonia, which shook him seriously, and the second, of Asiatic cholera in its worst form; from both of these he recovered; from the first, not permanently, and from the second, sufficiently to enable him to return to his duty for about five weeks, when he was obliged to succumb to increasing debility and dyspepsia.

Wounds and Injuries.—Three men sustained fatal fracture of the skull; one by falling out of his hammock, one by falling from aloft, and one by falling from the forecastle to the lower deck. A man sustained a fatal wound of the thigh by the accidental explosion of an Armstrong gun, forcing the "rammer" through the limb.

Seven men were drowned. Of these, two fell overboard; one was washed overboard from the bridge; one was found drowned in a tank on shore; two were drowned by the upsetting of a boat; and the cause of drowning is not given in one instance. In one case the cause of death is not stated. The total number of deaths was thirty, which is in the ratio of 13·8 per 1,000 of mean force, being a decrease compared with the preceding year equal to 7·4 per 1,000. Of these, eighteen were from various forms of disease, and twelve from wounds, injuries, drowning, and unexplained causes. The death-rate from sickness alone was only 8·3 per 1,000.

Invalided.—Three persons were invalided for the sequelæ of fevers; nine for diseases of the brain and nervous system, four of whom were subject to epilepsy; nine for diseases of the organs of respiration, six of whom were phthisical; thirteen for diseases of the heart and bloodvessels; eight for diseases of the alimentary canal; six for diseases of the liver; twelve for diseases of the genito-urinary organs; three for rheumatism; two for diseases of the bones and joints; one for cataract; four for diseases of the skin and cellular tissue; nineteen for dyspepsia and debility; seven for wounds and injuries of various kinds; and two for hernia. The total number invalided was 98, which is in the ratio of 45·3 per 1,000 of mean force, being an increase, compared with the preceding year, equal to 2·1 per 1,000.

Comparing the year 1867 with a ten-yearly average of this station, there was an increase in the ratio of cases to the extent of 7·8 per 1,000, and of invaliding to the extent of 8· per 1,000; but there was a decrease in the death-rate equal to 3·1 per 1,000.

TABLE, No. 1.

SHOWING the Number of Cases of all DISEASES and INJURIES, and the Number INVALIDED and DEAD, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Continued and Remittent Fever	238	110·1	3	1·3	4	1·8
Intermittent Fever	38	17·5	—	—	—	—
Small-pox	1	·4	—	—	—	—
Measles	2	·9	—	—	—	—
Disease of the Brain	2	·9	2	·9	1	·4
Apoplexy	1	·4	—	—	1	·4
Epilepsy	16	7·4	4	1·8	—	—
Paralysis	2	·9	1	·4	—	—
Insanity	3	1·3	1	·4	—	—
Delirium Tremens	3	1·3	—	—	—	—
Neuralgia	10	4·6	—	—	—	—
Vertigo	12	5·5	—	—	—	—
Insolation	2	·9	1	·4	—	—
Inflammation of the Lungs and Pleura	21	9·7	2	·9	3	1·3
Phthisis and Hæmoptysis	15	6·9	6	2·7	3	1·3
Influenza and Catarrh	224	103·7	—	—	—	—
Cynanche	72	33·3	1	·4	—	—
Asthma	3	1·3	—	—	—	—
Disease of the Heart, Functional and Organic	30	13·8	13	6·	2	·9
Hæmorrhoids	8	3·7	—	—	—	—
Varix	2	·9	—	—	—	—
Aneurism	1	·4	—	—	1	·4
Disease of the Stomach and Bowels	3	1·3	—	—	—	—
Dysentery	26	12·	3	1·3	1	·4
Diarrhœa	257	118·9	5	2·3	—	—
Constipation and Colic	40	18·5	—	—	—	—
Colica Pictonum	9	4·1	—	—	—	—
Disease of the Liver	16	7·4	6	2·7	—	—
Jaundice	9	4·1	—	—	—	—
Splenitis	1	·4	—	—	—	—

Table, No. 1.—Showing the Number of Cases of all Diseases and Injuries, &c.—*cont^d.*

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	2	·9	1	·4	—	—
Syphilis, Primary	126	58·3	1	·4	—	—
Syphilis, Secondary	58	26·8	6	2·7	—	—
Gonorrhœa	57	26·3	—	—	—	—
Orchitis	45	20·8	1	·4	—	—
Stricture	20	9·2	3	1·3	—	—
Incontinence of Urine, &c.	1	·4	—	—	—	—
Rheumatism	176	81·4	3	1·3	—	—
Gout	2	·9	—	—	—	—
Disease of the Bones and Joints	10	4·6	2	·9	—	—
Inflammation of the Eyes	15	6·9	—	—	—	—
Amaurosis and Cataract	21	9·7	1	·4	—	—
Otitis and Deafness	21	9·7	—	—	—	—
Erysipelas	11	5·	—	—	—	—
Scrofula	2	·9	—	—	—	—
Bubo (*Symp.*)	46	21·2	—	—	—	—
Phlegmon and Abscess	577	267·1	—	—	—	—
Ulcer	368	170·3	3	1·3	—	—
Psora	2	·9	—	—	—	—
Eruptions, &c.	31	14·3	1	·4	—	—
Dyspepsia and Debility	281	130·	19	8·7	1	·4
Dropsy	5	2·3	-	-	1	·4
Worms	11	5·	—	—	—	—
Headache	12	5·5	—	—	—	—
Wounds and Injuries	705	326·3	7	3·2	4	1·8
Burns and Scalds	32	14·8	—	—	—	—
Hernia	9	4·1	2	·9	—	—
Drowned	-	-	-	-	7	3·2
Poisoning	6	2·7	—	—	—	—
Not stated	-	-	-	-	1	·4
Submersion	5	2·3	—	—	—	—
TOTAL	3,724	1724·	98	45·3	30	13·8

TABLE, No. 2.

SHOWING the Number of DAYS' SICKNESS from each DISEASE, and from INJURIES, the Average Number of Men Sick Daily, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Continued and Remittent Fever	2,040	422	2,462	6·7	3·1
Intermittent Fever	185	8	193	·5	·2
Small-pox	3	-	3	—	—
Measles	16	-	16	—	—
Disease of the Brain	30	-	30	—	—
Apoplexy	1	-	1	—	—
Epilepsy	101	79	180	·4	·1
Paralysis	62	-	62	·1	—
Insanity	25	47	72	·1	—
Delirium Tremens	64	15	79	·2	—
Neuralgia	73	-	73	·2	—
Vertigo	41	-	41	·1	—
Insolation	22	-	22	—	—
Inflammation of the Lungs and Pleura.	357	189	546	1·4	·6
Phthisis and Hæmoptysis	322	414	736	2·	·9
Influenza and Catarrh	1,029	64	1,093	2·9	1·3
Cynanche	451	84	535	1·4	·6
Asthma	16	-	16	—	—
Disease of the Heart, Functional and Organic	567	115	682	1·8	·8
Hæmorrhoids	107	-	107	·2	—
Varix	64	4	68	·1	—
Aneurism	2	-	2	—	—
Disease of the Stomach and Bowels	84	35	119	·3	·1
Dysentery	284	4	288	·7	·3
Diarrhœa	1,443	114	1,557	4·2	1·9
Constipation and Colic	184	40	224	·6	·2
Colica Pictonum	47	-	47	·1	—
Disease of the Liver	301	3	304	·8	·3
Jaundice	189	-	189	·5	·2
Splenitis	11	21	32	—	—

Table, No. 2.—Showing the Number of Days' Sickness from each Disease, &c.—*cont^d.*

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	80	108	188	·5	·2
Syphilis, Primary	3,184	1,761	4,945	13·5	6·2
Syphilis, Secondary	1,521	832	2,353	6·4	2·9
Gonorrhœa	955	121	1,076	2·9	1·3
Orchitis	543	114	657	1·8	·8
Stricture	236	307	543	1·4	·6
Incontinence of Urine, &c.	20	-	20	—	—
Rheumatism	1,991	1,399	3,390	9·2	4·2
Gout	15	-	15	—	—
Disease of the Bones and Joints	263	53	316	·8	·3
Inflammation of the Eyes	204	132	336	·9	·4
Amaurosis and Cataract	207	35	342	·6	·2
Otitis and Deafness	197	140	337	·9	·4
Erysipelas	122	-	122	·3	·1
Scrofula	68	-	68	·1	—
Bubo (*Symp.*)	1,209	103	1,312	3·5	1·6
Phlegmon and Abscess	4,527	204	4,731	12·9	5·9
Ulcer	6,559	385	6,944	19·	8·7
Psora	9	9	18	—	—
Eruptions, &c.	338	91	429	1·1	·5
Dyspepsia and Debility	2,038	364	2,402	6·5	3·
Dropsy	108	23	131	·3	·1
Worms	33	-	33	—	—
Headache	32	3	35	—	—
Wounds and Injuries	6,809	1,214	8,023	21·9	10·1
Burns and Scalds	349	-	349	·9	·4
Hernia	204	59	263	·7	·3
Poison	56	-	56	·1	—
Submersion	8	3	11	—	—
TOTAL	40,006	9,118	49,124	134·5	62·2

TABLE, No. 3.

SHOWING the Number INVALIDED from each Ship employed on the CAPE of GOOD HOPE and EAST INDIA STATION.

CAUSE of INVALIDING.	Argus.	Daphne.	Euphrates.	Highflyer.	Jumna.	Nymphe.	Octavia.	Penguin.	Peterel.	Racoon.	Satellite.	Seringapatam.	Star.	Vigilant.	Wasp.	TOTAL.
Continued and Remittent Fever	–	–	–	–	3	–	–	–	–	–	–	–	–	–	–	3
Inflammation of the Brain	–	–	–	–	–	–	–	–	–	–	–	1	1	–	–	2
Insanity	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1
Epilepsy	–	–	–	–	–	–	1	–	1	1	–	1	–	–	–	4
Paralysis	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
Insolation	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1
Inflammation of the Lungs and Pleura	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	2
Phthisis and Hæmoptysis	–	1	–	–	1	1	–	–	–	1	–	1	1	–	–	6
Cynanche	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1
Disease of the Heart, Functional and Organic	2	–	–	1	4	1	1	–	–	–	–	2	2	–	–	13
Dysentery	–	–	3	–	–	–	–	–	–	–	–	–	–	–	–	3
Diarrhœa	–	–	1	–	–	–	4	–	–	–	–	–	–	–	–	5
Disease of the Liver	–	–	3	–	–	–	2	–	–	–	–	–	–	–	1	6
Inflammation of the Kidneys and Bladder	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1
Syphilis, Primary	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	1
Syphilis, Secondary	–	–	–	–	1	–	2	1	–	1	–	1	–	–	–	6
Orchitis	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	1
Stricture	–	–	–	1	–	–	1	–	–	–	–	–	1	–	–	3
Rheumatism	–	2	–	–	–	–	1	–	–	–	–	–	–	–	–	3
Diseases of the Bones and Joints	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	2
Amaurosis and Cataract	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1
Ulcer	–	–	–	–	–	–	3	–	–	–	–	–	–	–	–	3
Eruptions, &c.	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1
Dyspepsia and Debility	–	–	4	1	4	–	3	1	1	2	1	–	1	1	–	19
Wounds	1	–	–	1	–	–	4	–	1	–	–	–	–	–	–	7
Hernia	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1	2
TOTAL	3	3	12	5	16	2	23	2	3	8	1	8	8	1	3	98

TABLE, No. 4.

SHOWING the Number of DEATHS in each Ship employed on the CAPE of GOOD HOPE and EAST INDIA STATION.

CAUSE of DEATH.	Daphne.	Euphrates.	Highflyer.	Jumna.	Lyra.	Malabar.	Octavia.	Peterel.	Racoon.	Satellite.	Seringapatam.	Star.	Vigilant.	Wasp.	TOTAL.
Continued and Remittent Fever	–	–	–	–	–	–	1	1	–	–	2	–	–	–	4
Inflammation of the Brain	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
Apoplexy	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1
Inflammation of the Lungs and Pleura	–	–	–	–	–	–	2	1	–	–	–	–	–	–	3
Phthisis	–	1	–	–	–	–	1	–	–	–	–	1	–	–	3
Disease of the Heart	–	–	1	–	–	–	1	–	–	–	–	–	–	–	2
Aneurism of the Aorta	–	–	–	–	–	–	–	–	–	–	–	–	1	–	1
Dysentery	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1
Dropsy	–	–	–	–	–	–	1	–	–	–	–	–	–	–	1
Dyspepsia	–	–	–	–	–	–	1	–	–	–	–	–	–	–	1
Wounds and Injuries	–	–	–	1	–	–	1	–	1	–	–	–	–	1	4
Drowned	2	–	1	–	1	–	–	2	–	1	–	–	–	–	7
Not stated	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1
TOTAL	2	1	5	1	1	1	8	4	1	1	2	1	1	1	30

TABLE, No. 5.

SHOWING the Names of the SHIPS; the Average Complements; the Number of Cases; the Total Number of Days' Sickness on Board; the Average Number of Men Sick Daily, in each Ship; and the Number discharged to Hospital.

C. Commissioned. C. S. Station changed.

Rate, &c.	NAMES of SHIPS.	Where Commissioned.	When Commissioned.	Number of Guns.	Tonnage.	Horse Power.	Period.	Average Complements.	Average Complements corrected for Time.	Number of Cases of Disease and Injury.	Number of Days' Sickness on Board.	Average Number of Men Sick Daily.	Ratio per 1,000 of Average Force of each Ship for Twelve Months.	Number Discharged to Hospital.
Fourth Rate -	Octavia - -	Portsmouth	14 June 1865	35	3,161	S. 500	Year - -	520	520	847	9,219	25·2	48·4	23
Sixth Rate -	Highflyer - -	Portsmouth	15 Dec. 1864	21	1,161	S. 250	Year - -	250	250	281	4,599	12·6	50·4	7
	Racoon - -	Devonport -	3 Nov. 1866	22	1,467	S. 400	1 July to 31 Dec.	265	130	184	1,469	4·	30·7	24
	Satellite - -	Devonport -	30 Oct. 1866	21	1,462	S. 400	1 Oct. to 31 Dec.	275	70	193	2,228	6·1	87·1	9
	Valorous - -	Devonport -	15 April 1863	16	1,257	P. 400	1 Jan. to 30 June	230	115	111	968	2·6	22·6	4
	Wasp - - -	Portsmouth	16 Nov. 1863	13	974	S. 100	Year - -	175	175	237	2,916	7·9	45·1	7
Sloop - -	Argus - - S.C.	Hong Kong	23 Jan. 1866	6	981	P. 300	1 Oct. to 31 Dec.	170	45	104	1,038	2·8	62·2	8
	Daphne - -	Devonport -	12 June 1867	4	1,081	S. 300	1 Oct. to 31 Dec.	150	40	82	1,085	2·9	72·5	2
	Lyra - - -	Portsmouth	22 Dec. 1863	7	488	S. 60	Year - -	95	95	109	1,262	3·4	35·7	3
	Nymphe - -	Woolwich -	13 June 1867	4	1,084	S. 300	1 Oct. to 31 Dec.	145	35	69	615	1·6	45·7	–
	Peterel - - -	Devonport -	2 June 1866	3	669	S. 150	Year - -	100	100	174	1,733	4·7	47·	21
Gun Vessel -	Penguin - -	Bombay	14 June 1865	5	431	S. 80	Year -	65	65	158	1,925	5·2	80·	–
	Star - - -	Devonport -	14 Oct. 1866	4	695	S. 200	Year - -	90	90	294	2,469	6·7	74·4	5
	Vigilant - -	Mauritius -	16 July 1867	4	680	S. 200	Year - -	95	95	118	1,397	3·8	40·	1
Troop Ship -	Euphrates - C.	- -	- Mar. 1867	3	4,173	S. 700	1 July to 31 Dec.	180	90	348	2,584	7·	77·7	19
	Jumna - - C.	- -	- Mar. 1867	3	4,173	S. 700	1 Oct. to 31 Dec.	255	65	134	1,679	4·6	70·7	–
	Malabar - C.	- -	- Mar. 1867	3	4,173	S. 700	1 Oct. to 31 Dec.	220	55	91	960	2·6	47·2	3
Receiving Ship -	Seringapatam -	Cape of Good Hope.	1 April 1867	–	1,152	–	Year - -	125	125	190	1,151	3·1	24·8	38

TABLE, No. 6.

SHOWING the Number of CASES of all DISEASES and INJURIES

DISEASE OR INJURY.	Argus.	Daphne.	Euphrates.	Highflyer.	Jumna.	Lyra.	Malabar.
Continued and Remittent Fever	–	6	36	31	16	12	12
Intermittent Fever	2	–	1	3	–	–	1
Small-pox	–	–	–	1	–	–	–
Measles	–	–	–	–	2	–	–
Disease of the Brain	–	–	–	–	–	–	–
Apoplexy	–	–	–	1	–	–	–
Epilepsy	–	–	2	–	–	1	–
Paralysis	–	1	–	–	–	–	–
Insanity	1	–	2	–	–	–	–
Delirium Tremens	–	–	–	1	–	1	–
Insolation	–	–	1	1	–	–	–
Neuralgia	–	–	–	–	2	–	–
Vertigo	–	–	–	–	8	–	1
Inflammation of the Lungs and Pleura	–	2	2	1	4	–	–
Phthisis and Hæmoptysis	–	1	1	2	1	–	–
Influenza and Catarrh	2	4	14	13	7	7	5
Cynanche	–	1	11	–	6	2	2
Asthma	–	–	–	1	–	–	–
Disease of the Heart, Functional and Organic	4	–	–	2	3	1	–
Aneurism	–	–	–	–	–	–	–
Hæmorrhoids	–	–	–	3	–	1	–
Varix	–	–	–	–	–	–	–
Inflammation of the Stomach and Bowels	–	–	–	–	–	–	–
Dysentery	1	–	11	1	4	3	–
Diarrhœa	14	8	18	14	8	11	9
Constipation and Colic	4	–	6	–	1	1	3
Colica Pictonum	–	–	–	–	–	–	–
Inflammation of the Liver	–	–	4	4	2	3	–
Jaundice	–	–	–	–	2	–	1
Splenitis	–	–	–	–	–	–	–
Inflammation of the Bladder and Kidneys	–	–	–	–	–	–	–
Syphilis, Primary	1	2	5	4	–	2	–
Syphilis, Secondary	2	–	6	6	–	2	2
Gonorrhœa	–	–	3	10	1	–	–
Orchitis	1	–	–	3	–	–	2
Stricture of the Urethra	–	–	1	4	1	–	–
Incontinence of Urine, &c.	–	–	–	–	–	–	–
Rheumatism	3	5	21	5	3	2	5
Gout	–	–	–	–	–	–	–
Diseases of the Bones and Joints	–	–	3	1	–	–	–
Inflammation of the Eyes	–	1	2	3	–	–	–
Amaurosis and Cataract	–	–	–	–	1	–	–
Otitis and Deafness	–	–	1	1	3	–	–
Erysipelas	1	–	*a* 2	–	–	–	–
Scrofula	–	–	–	–	–	–	–
Bubo (*Symp.*)	1	–	7	–	–	3	1
Phlegmon and Abscess	8	22	46	48	18	*c* 13	11
Ulcer	25	14	21	38	7	13	1
Psora	–	–	–	–	–	–	–
Eruptions, &c.	1	–	1	4	–	–	4
Dyspepsia and Debility	4	2	66	14	13	7	11
Headache, &c.	1	–	1	2	–	1	–
Dropsy	–	–	–	*b* 1	–	–	–
Worms	–	–	–	–	–	–	–
Wounds and Injuries	27	12	49	56	20	22	13
Burns and Scalds	1	1	4	1	–	–	2
Hernia	–	–	–	1	1	1	–
Submersion	–	–	–	–	–	–	–
Poisoning	–	–	–	–	–	–	*d* 5
TOTAL	104	82	348	281	134	109	91

a 1 Erythema. *b* Œdema. *c* 1 Fistula in Ano. *d* By fish. *e* Hemeralopia. *f* 6 Tænia.

TABLE, No. 6.

in each Ship employed on the CAPE OF GOOD HOPE and EAST INDIA STATION.

Nymphe.	Octavia.	Penguin.	Peterel.	Racoon.	Satellite.	Seringapatam.	Star.	Valorous.	Vigilant.	Wasp.	TOTAL.
6	22	7	9	27	14	16	5	–	2	17	238
–	5	–	–	–	–	1	21	–	3	1	38
–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	1	–	–	1	2
–	–	–	–	–	–	–	–	–	–	–	1
–	2	–	5	–	–	3	1	2	–	–	16
–	1	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	3
–	1	–	–	–	–	–	–	–	–	–	3
–	–	–	–	–	–	–	–	–	–	–	2
–	4	–	–	–	–	1	–	3	–	–	10
–	–	–	–	–	–	–	2	1	–	–	12
–	5	1	3	–	–	3	–	–	–	–	21
1	1	–	2	2	1	2	1	–	–	–	15
6	47	7	10	5	23	22	19	11	12	10	224
2	16	2	2	6	1	9	5	3	–	4	72
–	2	–	–	–	–	–	–	–	–	–	3
2	8	*g* 2	–	–	1	4	2	–	–	1	30
–	–	–	–	–	–	–	–	–	1	–	1
–	–	–	–	1	–	2	1	–	–	–	8
–	1	–	–	–	–	1	–	–	–	–	2
–	–	–	*i* 1	–	–	–	–	–	1	1	3
–	2	1	–	–	–	–	–	1	–	2	26
5	65	4	2	3	35	2	35	2	15	7	257
–	11	4	–	1	–	4	–	1	3	1	40
–	–	–	–	–	–	9	–	–	–	–	9
–	2	–	–	–	–	–	–	–	–	1	16
–	3	–	–	–	1	–	–	–	1	1	9
–	–	–	–	–	–	–	1	–	–	–	1
–	–	–	–	–	1	–	1	–	–	–	2
1	44	17	7	6	1	3	3	9	12	9	126
1	13	5	2	5	2	8	1	–	–	3	58
–	26	3	–	1	–	2	1	3	–	7	57
–	10	3	6	4	–	3	6	1	3	3	45
–	4	–	5	–	–	1	1	3	–	–	20
–	–	–	–	–	–	1	–	–	–	–	1
4	28	11	15	11	2	11	7	17	12	14	176
–	1	–	–	1	–	–	–	–	–	–	2
–	2	–	1	–	–	1	–	–	–	2	10
–	5	1	–	1	–	–	2	–	–	–	15
–	*e* 15	–	1	–	–	*k* 1	*l* 1	–	–	2	21
–	7	–	–	–	3	1	3	–	–	2	21
–	4	–	*a* 1	*a* 1	–	–	1	–	–	*a* 1	11
–	–	–	2	–	–	–	–	–	–	–	2
1	17	–	4	2	2	4	1	–	–	3	46
21	139	30	39	44	10	14	58	15	10	31	577
–	71	5	5	19	73	5	27	7	16	21	368
–	1	–	–	–	–	1	–	–	–	–	2
–	8	1	2	3	–	2	2	2	–	1	31
1	57	18	4	5	5	7	21	1	6	39	281
4	–	1	1	–	1	–	–	–	–	–	12
–	1	*b* 2	–	–	–	–	–	–	*b* 1	–	5
–	*f* 7	*h* 1	–	*h* 1	–	*h* 1	–	–	*h* 1	–	11
13	180	29	39	34	17	40	61	29	17	47	765
–	9	3	1	1	–	2	1	–	2	4	32
1	–	–	–	–	–	2	2	–	–	1	9
–	–	–	5	–	–	–	–	–	–	–	5
–	–	–	–	–	–	*j* 1	–	–	–	–	6
69	847	158	174	184	193	190	294	111	118	237	3,724

g 1 Syncope. *h* Tænia. *i* Prolapsus ani. *j* By copper. *k* Hemiopia. *l* Nyctalopia.

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THE squadron on the China station in 1867 comprised twenty-seven vessels, viz., two of the second rate; four of the sixth rate; seven sloops; six gun-vessels; two steam vessels; one gunboat; two surveying vessels; one troop ship; one store ship; and one receiving ship permanently stationed at Hong Kong. Besides these there were fourteen small gunboats from which the returns are defective. The mean force corrected for time was 3,720, and this number will be taken in estimating the invaliding and death rates of the squadron, but in estimating the ratio of cases entered on the sick-list a reduction to the extent of the crews of the gunboats from which defective returns have been obtained, requires to be made, and for this purpose, therefore, the force will be estimated as 3,200. The returns from sixteen of the vessels are for the whole year, and from the remainder for periods varying from three to nine months. The total number of cases entered on the sick-list was 5,998, which is in the ratio 1874·3 per 1,000 of force, being an increase compared with the preceding year equal to 403·6 per 1000. Of these 191 were invalided, and ninety-five died, the former being in the ratio of 51·3 per 1,000, and the latter of 25·5. Compared with the previous year, there is a reduction in the invaliding rate to the extent of 5·4 per 1,000, but in the ratio of mortality there is an increase equal to 6·6.

The average daily loss of service from fevers, including the exanthemata, was in the ratio of 6·6 per 1,000; from diseases of the brain and nervous system, ·2; of the organs of respiration, 4·; of the heart and bloodvessels, 1·2; of the alimentary canal, 5·; of the liver, ·6; of the spleen, ·1; of the genito-urinary organs, 11·8; from rheumatism, 3·7; diseases of the bones and joints, ·2; of the special senses, ·6; of the skin and cellular tissue, 15·3; from diseases not classed, 2·7; and from wounds and injuries of various kinds, and hernia, 7·5. The average

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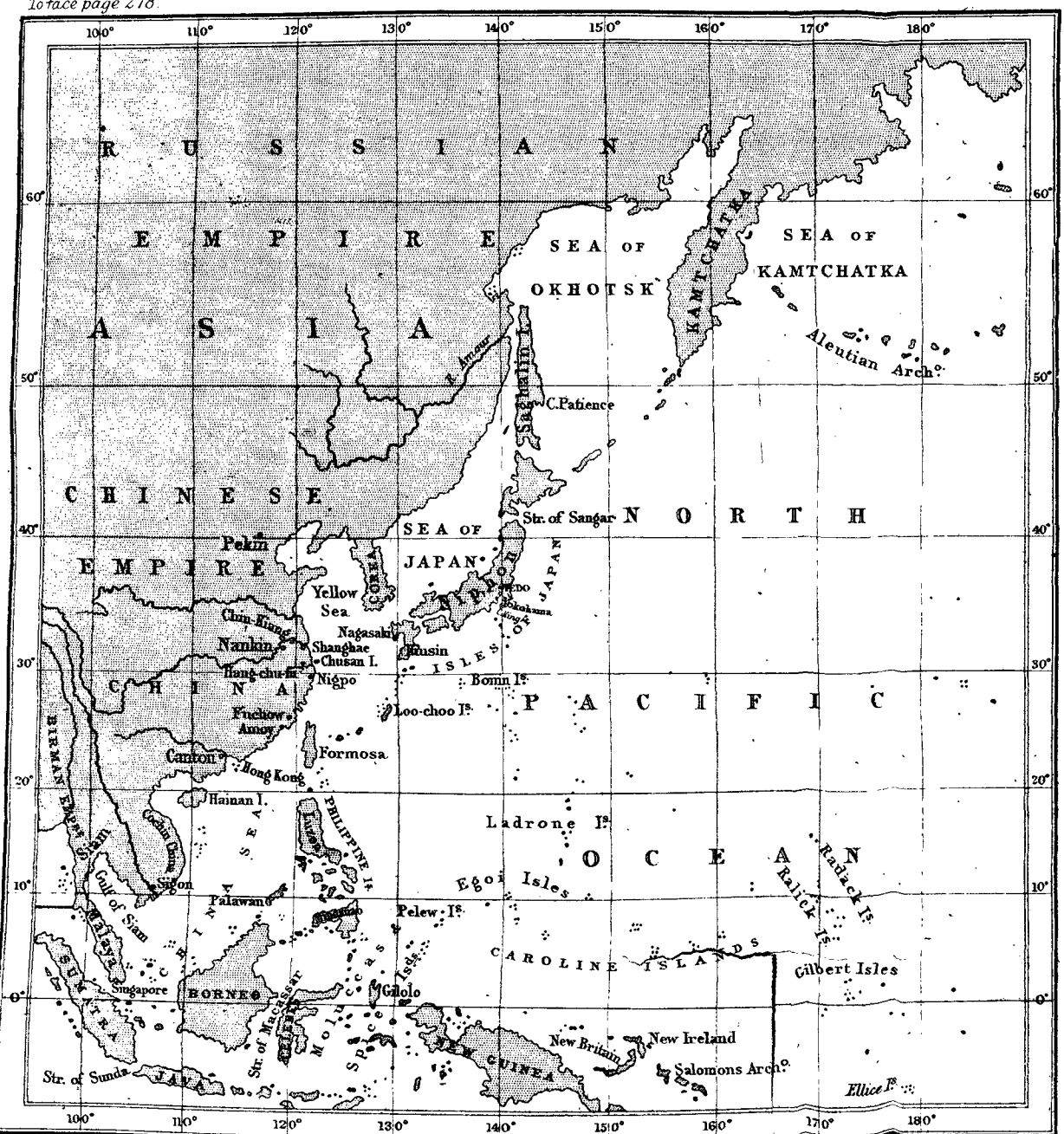

average total number of men sick daily was 233·8, which is in the ratio of 62·8 per 1,000, being a trifling increase compared with the preceding year.

Fevers.—There were 390 cases of continued and remittent fever, 148 of ague, 169 of small-pox, four of measles, five of scarlatina, two of vaccinia, and one of varicella, under treatment during the year; and of these two of continued and remittent fever, and five of ague, were invalided; and five of the continued and remittent type, eleven of small-pox, and one of scarlatina, proved fatal. Each case of primary fever was on an average eleven days under treatment; each case of ague between nine and ten days; each case of small-pox about twenty-one days; each case of measles about six days; each case of scarlatina about eleven days; each case of vaccinia between four and five days, and the case of varicella seven days.

Continued and Remittent Fevers.—There were twenty-five cases of primary fever in the Adventure. The majority of these occurred in the Michaelmas quarter of the year, and were attributed to exposure to malarious influences when the vessel was in the Aberdeen dry dock at Hong Kong, and to much subsequent fatigue in refitting ship and embarking stores for Japan. It may be well to observe that this vessel was paid off at Hong Kong on the 27th of May, after having been actively employed in commission upwards of five years, three of which were passed on the China station. She was brought forward and re-commissioned on the following day, for further employment in China, by a new ship's company which had arrived for this purpose from England. Three officers and twelve of the men of the old crew were re-appointed to the ship. The surgeon* says,

"It was during the summer passed at Hong Kong that nearly all the cases of mild remittent fever treated in the ship occurred. Twelve of the men suffered during the month of August, the rest were placed on the sick-list shortly after leaving that island, and were either relapses after discharge from hospital, or men received on board for passage, or cases of ephemeral fever among men belonging to the ship's company. As a cause for this little outbreak it may be stated that the laborious duties connected with fitting out, especially a week spent in the dry dock at Aberdeen, getting on board

* Acting Surgeon Robert Purves.

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board, and stowing away heavy stores, provisions, &c., and coaling ship, all of which works carried on in the heat of the day, severely taxed the strength of the men, who had but very recently arrived in a climate very trying, even under any circumstances, to Europeans. Some of the cases were more severe than others, but the prominent symptoms in all, at the commencement of the attack, were,—vomiting (in nearly every case), and in one or two continued irritability of stomach; headache; thirst; great heat and dryness of the skin; excited action of the heart supervening on slight shivering, and lumbar and general muscular pains. The pulse was always very frequent at first, rising, in two or three of the younger subjects, to 130 beats in the minute. There was in general no diarrhœa; the tongue was not always much loaded, but for the most part presented a frosted, silvery appearance. On the second morning, as a rule, a remission took place, but early again the same afternoon, an exacerbation almost invariably set in and continued during the night; a set of symptoms similar to the first, but milder in degree, having recurred two or three times, the patient convalesced. One or two of the cases were rather protracted by rheumatic pains in the extremities, and of course considerable debility resulted, requiring the continuance of quinine and wine, with nourishing diet. One of the first patients attacked, owing to the apparent severity of the early symptoms, was sent to the hospital ship at Hong Kong on the second day of the fever, but this man, as well as the other patients treated on board, was soon convalescent after leaving the harbour of Hong Kong, the average days' sickness being seven.

"The treatment consisted of quinine (with sulphuric acid) given in five-grain doses repeated during the remissions, a preparatory calomel purge being administered at the outset of the attack when the feverishness ran high; cold lotion to the head, and occasional sponging of the body were considered of service, at any rate they were grateful to the feelings of the patients. Weak lemon-juice, cold tea, or barley-water, as drinks, were supplied according to their tastes; it was thought advisable to give bark or quinine and wine for some time after recovery and discharge from the sick-list. Another case of fever was sent to the hospital ship at Shanghai, but in this instance the disease, which attacked a weakly adolescent, did not occur till the departure of the ship from Japan, and nearly six weeks after leaving Hong Kong. The disease altogether assumed a lower type, characterised by brown dry tongue, dulness of intellect, and although no 'spots' were ever discovered, there was slight bowel complication. This lad was again taken on board (when the ship left for Japan) for passage to sick quarters at Yokohama, whence, after a few days, he was sent back to the ship, and resumed his duty."

There were eight cases of primary fever in the Argus, one of which proved fatal. But very little information is given in connection with these cases. They are said to have been followed by an amount of debility out of all proportion to the severity of the acute symptoms. The fatal case occurred in the

the person of a seaman who was sent to the Acorn, the hospital ship at Shanghai, as a case of remittent. On the day after his admission, enteric fever was unmistakeably manifested in the pink-coloured eruption on the trunk and limbs, the abdominal tenderness, cerebral disturbance, and hæmorrhage from the mucous surfaces. On the second day after his admission, the hæmorrhage which had been checked, recurred, it is stated, to an alarming extent, the blood pouring out from the nose, lungs, bladder, and intestines. This profuse hæmorrhage yielded ultimately to the application of ice and iced drinks, but it produced so much prostration, that he failed to rally, and died on the fifth day after his admission to hospital, and the ninth day after being entered on the sick-list.

There was only one case of primary fever in the Cormorant. It was of the remittent type, and of seventeen days' duration. In Table IV. a death from fever appears in connection with this vessel. It occurred in the person of a seaman who had been three months in hospital at Hong Kong for bubo and secondary syphilis. During the latter part of the time, when convalescent, he assisted in nursing some dysenteric patients (whose evacuations, however, were removed by the Chinese nurses from the pans, in which chloride of zinc was always kept). He was discharged, apparently perfectly well, on the 9th of April, to the receiving ship Princess Charlotte, to await a passage to rejoin his ship. Two days afterwards, on the 11th, he complained of febrile symptoms, with diarrhœa. These increased. Delirium set in, and on the 15th he was received in hospital in a very low state of prostration. There were none of the characteristic spots to be observed, but all the other symptoms of enteric fever were present. The following Report of the post-mortem examination of the body is by the Deputy Inspector General * of the Hospital:—

"Thoracic viscera, healthy, with the exception of some congestion of the posterior part of the lungs. Liver and kidneys, somewhat enlarged and softened. Spleen, much enlarged and softened. Considerable congestion of the mucous membrane of the stomach, as also of the entire intestinal canal, especially of the ileum, cæcum, and ascending colon. Large oblong masses of Peyer's glands were found in the lower part of the ileum, at its unattached border, and the cæcum in a state of ulceration, extending through the mucous, and, in some instances, the muscular coats of the intestine. These were

* Deputy Inspector General R. Bernard, M.D.

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were covered with adhesive and considerably raised sloughs of a fungoid appearance, and dirty yellow colour projecting into the cavity of the gut. These masses were with difficulty removed from the ulcerated surface. Circular ulcers, but without the peculiar appearance described, were found in the ascending colon. The mesentery and omentum were very vascular and congested."

He adds:—

"This man must have contracted the disease in the Melville (the hospital ship), not having been on shore for upwards of three months before his death."

There were two cases of primary fever in the Hesper, both of them of a trifling, ephemeral character.

In the Icarus there were sixteen cases of primary fever. In consequence of the death of two of the medical officers who were in charge of this vessel, but little information in connection with her medical history, generally, has been obtained. These cases, however, appear, for the most part to have been of a trifling character.

There was only one case of primary fever in the Insolent. It was ephemeral in its character, being only two days on the sick-list.

In the Leven there were thirteen cases of primary fever, of which one proved fatal. The majority of them occurred when the vessel was at Labuan, in the Christmas quarter of the year. Seven of them are classed as continued, and six as remittent. The average duration of each case, of both forms of fever, was about ten days. The medical officer* remarks, in reference to these cases:—

"On the 27th of September we arrived at Labuan. This island, which derives its chief importance from coal mines, having been discovered, and now being worked, is inhabited chiefly by Chinese and Malays to the number of 2,000. It is also used as a penal settlement, and a detachment of Sepoys, with officers, stationed here. There is also a military hospital attached, with very fair accommodation. The soil of Labuan consists of sand, with a substratum of yellowish clay, and to this kind of soil I attribute the amount of fever that exists, both during the rainy season, consisting of the months of September, October, November, and December, but particularly towards the drying up of that season, or the beginning of the fine weather. After heavy showers, succeeded by a hot sun, the rain seems to be retained in the clay soil till the heat takes effect,

* Assistant Surgeon H. D. Stanistreet.

effect, and soon after a heavy miasma arises. To this cause, and to the want of artificial drainage in the island, I attribute the numerous cases of fever that took place on board this ship during the months of November and December. Every precaution was taken with regard to perfect cleanliness and ventilation, on board, and those who were entitled to leave were restricted to certain hours. Two of the cases of fever were very severe; one terminating fatally, and from the beginning presenting head symptoms, the headache being intense, and followed by delirium and coma. The other case seemed to be even more severe at first, there being furious delirium and obstinacy in resisting all treatment or food; but in this case there was a marked difference to the one that proved fatal, in the state of the pulse, its action in the former being strong and never losing strength, whereas in the latter it sank rapidly from the beginning. When this man became restored to consciousness, I sent him to the Military Hospital at Labuan, as it was deemed advisable to proceed to sea for a short time, there being still some cases of fever on the list. We remained at sea for eight days, and returned quite recovered, and the ship's company in a good state of health. The cases of fever not recorded were of a mild character, and presented the usual symptoms of the type it assumed, whether continued, remittent, or intermittent. I treated them with aperients, diaphoretics, and subsequently quinine, proper diet being assigned."

There were only two cases of primary fever in the Osprey, and they were of a trifling ephemeral character.

In the Pearl there were eighty-three cases of primary fever, all, with one exception, being classed as febricula. Seventy-nine of these cases occurred in the form of an epidemic in the Midsummer quarter of the year. This was ascribed to the operation of various deteriorating causes, such as exposure at Whampoa to malarious influences, followed by much hard work undergone by the ship's company at Hong Kong, with daily exposure to wet in boats; and subsequently by the over-crowded state of the lower deck, sixty supernumeraries having been received on board for a passage to another part of the station, and it being necessary to close the ports at sea. The fever was of a low type, with an early tendency to head symptoms. The average duration of each case was between five and six days. The treatment consisted usually in the administration of an emetic, followed by a mercurial purge and salines; quinine, with wine and nourishing broths, were speedily had recourse to.

There were fifty-six cases of primary fever in the Perseus, thirty-two of which occurred during the Midsummer quarter of the year, and of these twenty-five are classed as remittent. This outbreak occurred subsequent to exposure to malarious

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influences while the vessel was in the Aberdeen dock at Hong Kong. The disease was of considerable severity, and was associated in many instances with troublesome diarrhœa. The surgeon,* in remarking on the cases, says :—

"The outbreak of malarial fever and diarrhœa which has characterised this quarter began to assume grave proportions about eight days after the ship left Aberdeen Dock, and the number of cases increased so much during the month of May, that the ship was ordered by the senior officer from Hong Kong to Japan with all dispatch. This was followed by considerable benefit, for although a large number of cases of remittent fever and diarrhœa occurred within the first ten days of June, a rapid decrease in the sick-list followed that date. During the month of April only one case of intermittent fever occurred; in May, three of intermittent and four of remittent; while in June three of intermittent and twenty-one of remittent were placed on the list. Of these thirty-two cases of malarial fever, twelve were attended by diarrhœa, seven were sent to hospital, and the remainder treated on board; the latter had an average of fifteen days' duration each. The cases of intermittent were all of the quotidian form, and generally occurred in individuals who had previously suffered from climatic disease."

With regard to the cases of remittent fever, he observes :—

"Premonitory symptoms were observed in most of the cases, lasting from one to two days before the characteristic remissions appeared, and were as follows:—frontal headache, anorexia, and pain in the loins were present in nearly every case; distinct rigors in about one-half of the cases; pain at the epigastrium was present in eight; diarrhœa in the same number; vomiting only took place in four. As soon, however, as the remissions and exacerbations set in, rendering the nature of the disease evident, the symptoms may be described as follows:—Generally in the first or middle watch (8 p.m. to 4 a.m.) the patient would be attacked by an exacerbation, preceded in many by a feeling of chilliness, not amounting to actual cold; drowsiness and irritability of temper; the premonitory headache soon increased, and assumed a throbbing character in the temples, while the pulse augmented in volume and frequency, rising as high as 110 per minute. The face and eyes became flushed, and a burning sensation over the surface of the body was complained of by a few, while others declared they could not keep themselves warm, although the skin felt abnormally hot to the hand; pain in the loins was a constant annoyance. Disturbance of the nervous functions generally appeared about this stage, evidenced by giddiness and staggering, often amounting to inability to stand or walk; slight delirium; great confusion of thought; apathetic indifference to

* Surgeon A. B. Messer, M.D.

to external circumstances; in one case, complete insensibility occurred, accompanied with violent muscular spasms, producing a certain amount of opisthotonos. Either vomiting, nausea, or an uneasy feeling of weight or oppression at the stomach was invariably present during an exacerbation. The average duration of the first exacerbation was five hours, when the above-mentioned symptoms gradually became milder; the headache and flushing of the face subsided coincidently with the fall of the pulse, which generally, in about four or five hours, fell to about ninety per minute. The abnormal sensations of heat and cold became less marked, but sweating very rarely took place, and only to a slight extent. The stomach became quiet, the giddiness and indifference passed into drowsiness, frequently ending in unsound sleep, from which the patient would awake feeling much better, but weak, and utterly disinclined to any exertion, mental or bodily. 'The stage of 'remission' had now set in, and lasted on the average about twelve hours. During this time the pulse rarely fell below ninety; headache continued, but ceased to throb; the intellect became clearer, but remained inactive; vomiting was almost certain to occur on anything being swallowed, especially if hot or in large quantities; in fact, there was remission without complete cessation of most of the febrile symptoms, which having continued for about twelve hours, the same series of phenomena which marked the first exacerbation again set in, closely about the corresponding hour. The second exacerbations were sometimes more severe than the first, and sometimes of longer duration. The first exacerbation, if not the premonitory symptoms, always brought on so much inability to work, that the sufferers generally sought relief ere the first remission set in, so that the treatment was generally commenced before the second, or at latest the third, exacerbations took place. The early exacerbations were thus the most severe, and almost invariably recurred once in the twenty-four hours, chiefly, as beforementioned, towards evening or midnight, the following remission being most evident in the forenoon or afternoon. The average number of the exacerbations was eight; in some they were as few as three. Under treatment they became fainter and fainter, while the remissions merged into periods of almost complete apyrexia, or the remissions and exacerbations approached so nearly each other as to produce the appearance of mild continued fever. In some cases the exacerbations would return every second and then every third day, becoming more feeble each time, until all fever had disappeared. It was not unfrequently noticed in some of the cases that the characteristic remissions were either so imperfect as to resemble continued fever, or so perfect as to simulate the intermittent type of fever. Notwithstanding the great amount of prostration of body and mind which was present in most of the cases both during and after the fever, the patients speedily regained their health and strength, unless diarrhœa had been an accompaniment of the attack. This complication, as already mentioned, was present as a premonitory symptom in eight of the total cases. It was, however, a most common, and apparently almost essential, part in the progress of nearly every case. It usually set in about the end of the second or third exacerbation, and

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appeared to be vicarious with the sweating usually present in fevers of this type. It mostly lasted a few days after the fever had ceased, and when a patient was unusually long in recovering, it was almost invariably due to persistent diarrhœa. It was observed to be most intractable and severe when the exacerbations had been intense, and not followed by any sweating, and was most frequent in those who had suffered from fever or diarrhœa during the preceding year. The calls to stool were most frequent during the morning or the end of the middle watch, and seemed to partake of the periodic nature of the proper febrile symptoms. It may be presumed that this flux acted as an outlet to the fever poison, in lieu of that usually afforded by the sweat glands; at the same time it certainly seemed to leave a most baneful impress upon the intestinal mucous membrane, rendering it exceedingly liable to future attacks of diarrhœa or dysentery. Consequently free sweating in the malarious fevers is good, and should be encouraged, as the internal organs are thereby less likely to suffer.

"The feeling of oppression at the epigastrium, nausea, or vomiting, which, as before mentioned, occurred in a few cases, as premonitory symptoms, were almost invariably present during the early exacerbations, and in a lesser degree during the remissions. This constant irritability of the stomach was a most annoying feature in these cases of fever, as it not only produced a great amount of distress and depression in the patients, but also seriously interfered with the administration of remedies during the most available hours of remission. Sinapisms at the epigastrium were found of grest use in allaying this sickness. The vomited matter in most of the cases consisted of bilious matter of a yellow colour, viscid consistence, and a bitter taste, and was small in quantity, showing that functional hepatic derangement existed. This symptom (vomiting of bilious matter) along with slight tenderness over the region of the liver, in a few cases was the only evidence that that organ was affected, enlargement not being detected in any of the cases treated on board. Neither was there evidence of splenic enlargement, although both lesions were carefully sought after. It must, however, be kept in mind that, with very few exceptions, the men who were attacked had only been on an average eighteen months in China, and few of them had ever been in the tropics before, or exposed to malarial disease before their arrival in China in January 1866.

Treatment.—Although a large number of cases of remittent fever occurred amongst the crew of the Perseus, it must be borne in mind that the fever was, for the most part, in a decidedly mild form, and in no case did death result from the fever alone, even amongst those sent to hospital. It will not therefore be surprising that neither bleeding nor other lowering plan of treatment has in any case been requisite or even safe. Whenever it was considered proper, and at the same time compatible with the custom of the service, the cases were sent to hospital as early as possible, in order that they might have the benefit of that rest and quiet, those proper hygienic and dietetic conditions which are so necessary in the treatment

treatment of fever, and which are so difficult to afford the sick in a man-of-war. In the Perseus particularly the difficulty was great, owing to the small cubic space which exists in her, as well as the peculiar duties entailed on that ship, whereby but little rest was permitted to men or officers during the greater part of 1867.

"It may at once be mentioned that the plan of treatment adopted in the Perseus was, with slight alteration, that recommended by Dr. W. C. M'Lean in 'Reynolds's Medicine,' to the efficacy and safety of which I can bear most cheerful testimony, and which, I think is borne out by the favourable result of the cases. There was, however, in these cases the necessity of combatting the prevalent diarrhœa at the same time of treating the fever. When looseness of the bowels did not exist as a premonitory symptom, a mercurial purge was usually given as soon as the patient was seen, followed in two or three hours, or as soon as the stomach would bear it, by a ten-grain dose of quinine. This dose was given and repeated, so that at least thirty grains of the sulphate were retained prior to the hour of the next exacerbation. In a few cases where the stomach was so irritable during the exacerbation that the quinine was rejected, it was omitted till the remission set in, but the attempt was always made to give it as early as possible. The form in which it was most easily retained was that of pill. Wine, arrow-root, or fowl soup, were the only articles of diet that were well borne during the fever, but beef-tea and soup made from Liebig's "Extractum Carnis," were usually taken greedily during the latter stage of the fever and the convalescence. This Extractum Carnis was generally preferred to the essence of beef preserved in tin pots. It is certainly the most convenient form of preserved soup that I have ever used, but otherwise I do not think it has any special virtue to commend it.

"In the treatment of the accompanying diarrhœa, lead and opium pill was found most serviceable, given after each stool. Solid opium alone, proved a useful remedy, as it also induced sleep, and relieved the soreness, and restlessness of the patient. In one or two cases it seemed to increase the headache, but no bad results were noticed on the liver. Hydrochlorate of morphia was substituted in some cases for the opium; but these remedies were chiefly called into play for the diarrhœa, when it persisted after the fever. In a small number of the cases the diarrhœa assumed a chronic and partially dysenteric form, when Dover's powder and ipecacuan and opium were found useful. Weak lime-juice was allowed as a drink in most of the cases, but I am doubtful of its safety in diarrhœal cases. Cutting the hair short, and the application of cloths wet with vinegar to the head, gave great relief to the headache, and were adopted in nearly all the severer cases. Mercury, I need hardly say, was never given, except as before mentioned, as a purge at the outset. Cold affusion or wet packing I have had no experience of; but I can adduce the comfort I derived in my own person in support of the use of tepid sponge-baths during the remissions, if not continued too long, so as to produce undue exhaustion of the patient."

This very excellent account of the epidemic of remittent

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fever as it appeared in the Perseus, is rendered more complete by the following description, from the pen of the same officer, of Aberdeen Dock, where the disease was no doubt contracted.

"Aberdeen Dock is on the south side of the island of Hong Kong, in what would appear at first sight to be a healthy situation, there being in the neighbourhood no paddy fields, little or no swamp, and but a small extent of mudshore exposed at low tide. A small Chinese village adjoins the dock, and is separated from it by a narrow salt-water bay, in which the water is certainly far from clean, and on which a considerable number of native boats are generally moored. The village is rather cleaner than is usual in this country. The surrounding hills, which rise rather abruptly round the dock, are steep, high, and covered with a scanty coarse kind of grass and a few shrubs. Notwithstanding all these circumstances, which may be considered favourable to healthiness, this locality has for some time borne a notoriety for unhealthiness; and, at the time of our visit, an extensive excavation was going on for the purpose of forming a new and larger dock. This excavation ran parallel to the dock in which the Perseus was placed, at a distance of at most twenty-five yards. The nature of the soil disturbed in this work was chiefly the same as that of which most of the Island of Hong Kong and the adjoining mainland of Kowloon is composed, viz., a red clayey substance in which granite boulders are imbedded, so as to form a peculiar friable compound, usually called here 'disintegrated granite.' This soil is very porous, and is said by Dr. Parks to contain less than 2 per cent. of organic matter. Along with this upturned soil there was a great quantity of coral in a recent state, and black sandy mud, doubtless containing a large amount of organic matter, animal and vegetable, thrown up from that part of the excavation necessary to form the mouth of the new dock. These marine products were strewn round the dock, and exposed to the sun's rays, and although no particular or offensive smell was observed to emanate from them, or from the granite soil, yet both, but especially the latter, have been so frequently, and apparently with considerable justice, blamed as a source of malaria, that the sequel may not be so surprising.

"As before mentioned, the ship entered this dock on the 13th of May, and remained there till the 20th, during which time two cases of fever and six of diarrhœa were put on the list. The ship's bilges were considered at the time to be in a bad state, but on inquiry they were not found to be in a condition to account for the sickness then beginning to prevail, and although a strong smell of 'bilge' had on frequent occasions been experienced in this ship, yet our opinion was that the smell, although very evident at the time in question, was not stronger than, or even so strong as, it had frequently been, and that we did not consider it to be the direct cause of the sickness, although, without doubt, it may have contributed its share as a predisposing cause."

There were twenty-seven cases of primary fever in the Princess

Princess Charlotte, the receiving ship permanently stationed at Hong Kong, all, with one exception, being classed as febricula, and having an average duration of between six and seven days to each case. The exceptional case was one of the enteric type, which occurred in the person of a seaman waiting a passage to join his own ship. He was sent to hospital, where he died. His death has been already referred to in connection with the Cormorant. On Table IV. a death from fever appears in connection with the Princess Charlotte; it occurred in the person of a petty officer, who, being invalided, subsequently died in Haslar Hospital of remittent fever, complicated with pleuritis.

Two cases of primary fever, classed as continued, appear in the Returns from the Princess Royal. Each case was on an average between thirteen and fourteen days under treatment; but otherwise no information is given in connection with them.

There were twenty-seven cases of primary fever in the Rattler, fifteen of which are classed as remittent, and the remainder as ephemeral. They appear to have been of a trifling character for the most part, the average duration of each case of both classes of fever being between four and five days.

In the Rifleman there were six cases of primary fever, three being classed as continued, and three as remittent; of the former one proved fatal in the person of an ordinary seaman, who, after prolonged exposure to the sun in an open boat, while employed in surveying, was attacked with general febrile symptoms, accompanied with acute head affection. These were relieved, and the fever had entirely disappeared, when a relapse took place preceded by rigors, and accompanied from the first by marked symptoms of meningeal irritation, under which he subsequently sank.

There were eleven cases of primary fever in the Rinaldo, all classed as continued. Eight of these occurred during the Midsummer quarter of the year, when the vessel was at Singapore and Labuan, but no information is given in connection with them. The average duration of each case was between eight and nine days.

In the Rodney there were twelve cases of primary fever, all classed as continued. Five were sent to hospital; but, with this exception, no other information has been obtained in connection with them.

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There were fifty-five cases of primary fever in the Salamis, fifty of which occurred in the Midsummer quarter of the year, and were attributable to exposure to malarious influences at Whampoa, where the vessel was docked. They are all classed as remittent fever. The cases are said, as a rule, to have been of a very tractable character, the average period during which the milder attacks were under treatment being about five days. In some convalescence was slow, and relapses were not unfrequent.

In the Satellite there were sixteen cases of primary fever, the majority of which occurred during the Michaelmas quarter of the year, when (during the months of July and August) the ship's company were employed in an expedition against the pirates of the Nicobar Islands, and were much exposed to the influence of a high temperature as well as constant rains, in operations on shore, the pirates having to be pursued through a thick and soaking jungle at the height of the wet season, and at a time when remittent fever in a severe form was epidemic. The surgeon* says:—

"On the 19th of July the Satellite sailed from Penang, in company with the Wasp, and detachments of Indian troops, on an expedition against the pirates of the Nicobar Islands, in the Bay of Bengal. On the 22nd the operations began at the Great Nicobar Island, and continued throughout the group until the 9th of August. It was then the height of the rainy season; not a day passed without several hours of constant wet, the thermometer standing, on an average, at 96°. The low lands were entirely under water, whilst the jungle was nearly impenetrable, and soaking with moisture.

"The islands are notoriously unhealthy, and were particularly so during the rains, when a disease is very prevalent, known by the name of Nicobar or jungle fever, which partakes of the character of a severe bilious remittent, and is exceedingly fatal to Europeans; all the Danish settlers in the group died of it some years ago. The natives themselves suffer much from it during and immediately after the rains.

"During our operations . . . . the work was of the most arduous description, and the officers and men were necessarily much exposed, both from the peculiarly harassing nature of the service, as well as from the severity of the weather. Ten cases of fever occurred during and after the expedition. All of them were of a remittent character and showed precisely the same symptoms, and all of them yielded to the same treatment. I have no doubt but many more cases would have taken place had not quinine in spirits been given daily to the men employed, as a prophylactic."

There

* Surgeon J. N. Dick.

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There were thirteen cases of primary fever in the Serpent, twelve of which are classed as febricula, and the thirteenth as continued. It appears, however, to have been of the remittent type, and was forty days under treatment. The average duration of each case of febricula was between seven and eight days.

In the Slaney there were five cases of primary fever, one of which, classed as continued, was thirty-one days under treatment, and another, as remittent, thirty days. The remainder were ephemeral. No particulars are given in reference to these cases.

There was only one case of primary fever, of an ephemeral character, in the Sylvia; and eight cases of primary fever which appear in the returns from the Zebra were of the same type.

Small-pox.—One hundred and sixty-nine cases of small-pox were under treatment in the squadron during the year, and of these eleven proved fatal. One hundred and seventeen of the cases, and eight of the deaths, occurred amongst the ship's company of the Princess Royal, which was visited with a very severe epidemic of this disease in the beginning of the year.

In the Statistical Report of the Health of the Navy for the year 1866,* it was remarked that five cases of small-pox had appeared in the Princess Royal, and that the surgeon † of the ship reported that all the men in the ship had been vaccinated. The method in which the vaccination of doubtful cases had been carried out had been by taking

"four of the healthiest of the ship's company to the house of a Chinese, at Singapore, and by vaccinating each man in both arms from a child. From these four men, in due time, all the ward-room and gun-room officers, as well as the doubtful cases among the ship's company, were vaccinated."

This method was adopted because it is stated the lymph in the capillary tubes was useless. Three of the cases occurring in 1866 were among the number who had been thus vaccinated. The history of the epidemic in 1867 is thus given by one of the medical officers ‡ of the ship:—

"The day previous to our departure (from Hiogo, Japan) we sent six

* Page 305. † Surgeon F. Y. Toms.
‡ Assistant Surgeon E. W. Doyle.

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six cases, three of chronic diarrhœa, one of rubeola, and two of variola, by Her Majesty's ship Argus, to the Royal Naval Hospital, Yokohama. The variola cases were of a mild description; but one of them was much reduced by secondary syphilis.

"On the 13th (of February) we sailed from Hiogo, and on the following morning twenty patients were placed on the list with symptoms of variola; viz., headache, pain in the back, rigors, and great prostration. On the following morning, sixty were on the list; this continued up to the 20th, at the rate of thirty or forty a day. One day the number on the sick-list amounted to 120, and at least as many more who were not on the list were attending the sick bay for medicine. At the outbreak of the epidemic it was supposed to be fever of a mild character, of which we have had a good deal in the ship at various times; but on the third day after the symptoms complained of, in many cases a papular eruption appeared over the body, of a varioloid character; in many instances, however, men were placed on the list suffering from rigors, pain in the back, headache, in fact, all the premonitory symptoms of variola, and became convalescent in a short time, without any eruption having made its appearance.

"On a patient being seized with the premonitory symptoms of the disease, he was placed in his hammock under a screen on the starboard side of the main deck. This screen was increased so much in a few days that it extended from the ward-room to the sick bay door. The port side of the main deck was in a similar state; the whole ship was thoroughly saturated with the disease. At the outbreak of the epidemic men were terrified; it cast a gloom over the whole ship, but as it attained its climax, they became reckless. I have constantly heard them jest about it. Many of the cases were complicated with pectoral affections, owing to the extension of the eruption to the mucous membrane.

"The treatment adopted on board the Princess Royal in cases of variola was as follows: On a patient presenting himself with the usual symptoms, an emetic consisting of a half a drachm of sulphate of zinc was administered. After that had operated, he was placed in his hammock, and saline diaphoretics prescribed; if pectoral symptoms arose they were relieved accordingly by the use of expectorants. As in many cases the symptoms assumed a typhoid character, it was necessary to administer stimulants, such as wine, beer, &c. One man died at sea; another on the morning we arrived at Hong Kong. The number of cases returned as variola was 116; of these fifty-six were sent to hospital, viz., nine to Her Majesty's gunboat Flamer; twenty-six to Stonecutter's Island; and twenty-one to the Seaman's Hospital in Hong Kong. . . . . The worst cases were sent to the Seaman's Hospital, as, from its position and size, patients had a more favourable chance of recovery than in either the Flamer or at Stonecutter's Island."

There was a single case of small-pox in the Adventure. That vessel had left Hong Kong for Japan, taking with her, for a passage, an officer of the Ceylon Rifle Regiment, which was stationed

stationed at the former island. Small-pox had been very prevalent in the regiment, and this officer, who came on board on the 3rd of January, sickened with the disease on the evening of the 13th of January, the fourth day after the arrival of the vessel at Nagasaki, and the eleventh after departure from Hong Kong. On the 16th he was landed at the Dutch Hospital at Nagasaki, where the disease assumed a semi-confluent form, and proved tolerably severe, although good cicatrices of previous vaccination existed. On the day of his being landed a seaman was seized with high fever, accompanied with vomiting, epigastric tenderness, and lumbar pain; he was sent to hospital the next day, and the following day the eruption appeared, *i. e.* on the fourteenth day after leaving Hong Kong, where it is presumed the disease was contracted. The man belonged to the Captain's gig, and had therefore more ample opportunities of being on shore and mixing with the people than the majority of his shipmates. He rejoined the ship in April, completely recovered; he had passed through the stages of the disease very favourably, being well protected by vaccination performed in infancy, but not subsequently.

There were three cases of small-pox in the Argus; they occurred in the early part of the year, and appear to have been due to communication with the Princess Royal, from which ship it appears they embarked three small-pox patients for conveyance to sick quarters at Yokohama. No information is given as to whether the men attacked had been previously vaccinated or not.

In the Basilisk, Manilla, and Pelorus, there were single cases of small-pox. In the first of these vessels the disease occurred in the person of a young officer, who presented two well-marked cicatrices of previous successful vaccination; the attack was consequently exceedingly mild. It appears to have been due either to communication with the Princess Royal, or Serpent, in which vessels small-pox was epidemic at the time, or from infection from the shore. In the Manilla a seaman was attacked after leave on shore at Shanghai. The disease in this case was also modified, the patient being protected by previous vaccination. In the Pelorus the subject of the disease was one of the carpenter's crew, who appears to have contracted it at Nagasaki, where he had been on leave. The attack was mild, the man showing good vaccination cicatrices.

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There were two cases of small-pox in the Perseus. The surgeon says:—

"The cases of variola, the first that have occurred on board during this commission, appeared within three days of each other, at Hong Kong, during the second week of January; both cases were slight, of the 'discrete' variety, and occurred in patients with good vaccine marks; they were both sent to hospital before the disease had fully declared itself, the premonitory symptoms being well marked, and the history, especially in the first case, extremely suspicious, the period from the last occasion of leave just coinciding with the period of incubation; at the same time small-pox, in a severe form, was known by us to be rife amongst the natives on shore, as also amongst the merchant shipping. Simultaneously with these two cases, one or two appeared on board some other vessels of the squadron, and at once orders were given by the senior officer to stop all men's leave at Hong Kong, and to institute daily medical inspections of all vessels of war in Hong Kong harbour. Leave was, however, granted to Kowloon, where variola was certainly not rare amongst the natives, as children in various stages of inoculation might be observed in all the villages. No steps were taken to prevent Chinese tradesmen and others coming on board ship, although in all probability inoculation of children was being practised in these mens' own houses, or at least in the houses of those with whom they came in daily contact. Very few cases, however, occurred in the crews of men-of-war, and I am not aware of any fatal case. Immediately on the observation of the disease on board this ship, the state of vaccination of the ship's company was examined and found satisfactory. One man, a recruit from the merchant service, was unvaccinated, and he resisted two carefully made attempts with fresh lymph, which was too scarce to permit of a third."

There was a single case of small-pox in the Princess Charlotte; it occurred in the person of a stoker who worked in the dockyard, and lived on shore. No mention is made as to whether he had been previously vaccinated or not. In the Rattler there were seven cases of small-pox; they occurred in the Lady quarter of the year, and are thus reported on by the surgeon* of the ship:—

"I regret to say that, during the quarter, seven cases of small-pox occurred, the first on the 19th of January, in the person of a Chinese gun-room servant; when first seen, he presented a well-marked variolar eruption. As the ship was near Swatow, that port was at once made, and the man landed and placed under the care of a private practitioner. By my advice the ship remained there for five days, when, no fresh case occurring, she proceeded on her voyage. When the Rattler left Hong Kong variola was very

* Surgeon Robert Hague, M.D.

very prevalent, and it was from that source I believe the disease was introduced into the ship. The next case occurred nearly a fortnight afterwards, in the person of a gun-room officer; he was almost well on our arrival at Yokohama, but was sent to sick quarters for precaution's sake; he returned in a few days, and the day after his return went on shore with a ward-room officer, who was the next person attacked. He complained of the premonitory symptoms on the 22nd of February, and the eruption appeared on the morning of the 23rd, when he was at once landed. The ship went to sea the same day, being ordered to Shanghai. Thus far the infection in these cases could be clearly traced. On the third day, at sea, a fourth case occurred in the person of a boy who, when first seen, presented a well-marked eruption on the face, trunk, and arms; he was placed as far apart from the ship's company as possible, with a screen round his cot, and care taken that there was plenty of air and ventilation. On arrival at Shanghai he was taken to the French Hospital there, the accommodation, attention, and cleanliness of which is beyond all praise. Within a few days after our arrival three fresh cases occurred, all within a day of each other, and were at once removed to hospital. All the cases were of the mildest character, with the exception of one, which proved one of the worst cases of confluent small-pox I ever saw, but I am happy to say he is now convalescing. When he was sent out of the ship there were only half a dozen of spots visible, but within forty-eight hours he was perfectly covered. . . . . When the ship was in commission in January 1866, I examined the ship's company, and subsequently, when an isolated but fatal case occurred in the Straits of Malacca, another inspection was made. When these cases broke out, I again examined them, and every one had either been vaccinated or had had small-pox."

A single case of small-pox occurred in the Rinaldo, of so mild a character that it was only accidentally discovered at evening quarters. It occurred in the person of a boy, who appears to have been infected at Hong Kong when on leave; he had a good vaccination cicatrix. He was at once taken to hospital.

There were ten cases of small-pox in the Scylla. They all occurred in the Lady quarter of the year, and were of a very mild character, being modified by previous vaccination. The disease appears to have been contracted at Yokohama.

Twenty-one cases of small-pox occurred in the Serpent in the Lady quarter of the year, when the vessel was in Japan; three of the cases proved fatal. In the great proportion, however, the disease appears to have been of a modified character, the patients being protected by previous vaccination.

There were three cases of small-pox of a modified character

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in the Slaney. The men appear to have been protected by previous vaccination.

It thus appears that thirteen vessels of the squadron were more or less affected by small-pox, almost every case occurring in the Lady quarter of the year, at which season the Chinese are in the habit of inoculating their children, and thus spreading the disease in all directions. On no station is it more essential that ships' companies should be thoroughly protected by vaccination from the poison of small-pox than in China and Japan, for there the vessels of the squadron are perforce brought into contact with the disease at one season of the year. In the Statistical Report of the Health of the Navy for the year 1866*, the propriety of considering whether every man and boy should not be vaccinated on his first entry into the service, however well marked his primary vaccination might be, was suggested, and this would appear to be peculiarly a necessity, in the case of those about to be employed on the China station.

Measles.—Four cases of measles appear in the returns; they were of a trifling character; three of them, indeed, appear to have been cases of roseola.

Scarlatina.—A case of scarlatina is entered in the returns of the Salamis. No information whatever is given in connection with it, and as its duration was only four days, it may reasonably be doubted whether it had any relation to scarlatina at all.

In the Serpent, also, in which four cases of scarlatina are reported to have occurred, two of them at least, one of which proved fatal, may be considered doubtful. These occurred during the prevalence of small-pox in the ship, and appear to have been exceptional forms of that disease. The other two cases occurred at a later period of the year in the persons of Chinese stokers under treatment at the time for syphilis, and there seems to have been some doubt whether the eruption which appeared in them, and the irritative fever which accompanied it, may not have had some connection with the syphilitic poison.

Diseases of the Brain and Nervous System.—There was a slight increase in all the ratios coming under this head compared

* Page 273.

compared with the preceding year. Seventy-four cases altogether of various forms of disease were under treatment, and of these fourteen were invalided, and six proved fatal. Precisely one-half of those invalided suffered from epilepsy.

A fatal case of abscess of the brain occurred in the person of a stoker of the Salamis. Its history is somewhat peculiar, and is thus given by the Deputy Inspector General* of the Naval Hospital on board the Melville, under whose care he came.

"A very singular case of cerebral abscess following a lacerated scalp-wound over the frontal bone (the latter uninjured), and received during a drunken fight, by a man of intemperate habits, was admitted. Symptoms of compression of the brain, preceded by rigors, presented themselves soon after admission, and fifteen days after the reception of the wound, a circular portion of bone, denuded of periosteum, of three quarters of an inch in diameter, was removed by the trephine, above and behind the external angular process of the os frontis on the right side, considerable care being found necessary during the operation, in consequence of the unequal thickness of the bone in that situation. On its removal the dura mater rose into the cavity with immediate return of consciousness, and though the existence of fluid was suspected beneath, the membrane was not punctured at the moment. Twelve hours afterwards the comatose symptoms re-appearing, a bistoury was introduced, giving exit to about a drachm of purulent matter, and with complete relief. The wound on the dura mater appeared to close up on two occasions subsequently, when it was re-incised, comatose symptoms supervening, and with similar relief. After a long struggle the man died convulsed, and the post-mortem examination of the body showed the correctness of the diagnosis, a large cavity filling the right cerebral hemisphere, communicating freely with the external opening and also with the lateral ventricles. This man lived for twenty-four days after the first operation, during a great part of which time he was entirely in possession of his mental faculties."

The following is the detailed report of the autopsy:—

"Sectio cadaveris, sixteen hours after Death.—An open crucial wound in scalp, on right side of the frontal bone, and behind the orbital ridge; in the centre of this the brain appeared as a pulpy mass, filling the circular opening in the bone. On removing the scalp the bone was found denuded of periosteum to the extent of about a quarter of an inch from the superior margin of the opening, which was situated above and behind the external angular process of the os frontis, and was three quarters of an inch in diameter. On removing

* Deputy Inspector General Robert Bernard, M.D.

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removing the calvarium the dura mater was found to have been closely adherent, and unusually vascular, excepting a portion of about two inches in diameter in the immediate vicinity of the opening where it was detached, and of a pale, sodden, and flattened appearance. In the centre of this a longitudinal opening of about half an inch in extent was observed filled with pulpy cerebral substance; the dura mater was adherent to the cerebral hemispheres, especially on the right side, to within a very short distance from the wound; there was not much increased vascularity or other inflammatory appearance of the arachnoid; the right hemisphere, anteriorly and laterally, was flattened, depressed, and of a yellow colour round the pulpy mass which had filled the opening in the cranium. Corresponding to this depressed surface was found a cavity capable of holding a walnut; the superior wall of the cavity was about half an inch in thickness, and there was free communication with the external opening; the sides were composed of soft pultaceous brain-substance; the left lateral ventricle contained an ounce of fœtid turbid serum; the floors of both ventricles were in a soft disorganised state, as also were the fornix and septum lucidum. The ventricles communicated freely with each other, and the right with the abscess. On slicing the hemispheres, the brain-substance was found firm and not over vascular except in the part mentioned. The base of the brain appeared healthy except that it was thought the fifth pair of nerves on the right side, at their root, were softer and more pultaceous than normal. The heart was pale and softer than natural, and there was some hypertrophy of the kidneys."

There were four deaths from apoplexy. Three of these were the consequence of exposure to excessive heat, and one was due to a combination of alcoholic poisoning and insolation.

Diseases of the Organs of Respiration.—There was an increase in the ratio of cases coming under this head to the extent of 50·3 per 1,000, compared with the preceding year, but there was a slight reduction in the invaliding and death rates. The large increase in the ratio of cases was almost altogether owing to the greater prevalence of catarrhal affections. Of 571 cases of disease which were under treatment during the year, twenty-four were invalided, and ten had a fatal termination. Pulmonary consumption occasioned a loss to the service of sixteen by invaliding, and nine by death.

Diseases of the Heart and Bloodvessels.—Compared with the preceding year, there was a considerable increase in all the ratios coming under this head. Eighty-three cases altogether were under treatment, and of these twenty-one were invalided, and five proved fatal.

A fatal

A fatal case of disease of the heart occurred in the person of a petty officer of the Adventure. He was a healthy-looking man, of sober habits, and when placed on the sick-list complained of palpitation, slight headache, a sensation of "sinking" under the sternum, and nausea, which had come on during the night while on watch at sea. There was nothing in his physical or rational symptoms to indicate any imminent danger, but on the morning of the third day after being being placed on the sick-list he had an attack of rather violent palpitation, with a small rapid, and intermitting pulse. Stimulating draughts were freely given, but in the evening delirium of a somewhat lively character set in, and continued until 9. 30 p.m., when, in making some exertion to rise, he suddenly expired.

The following is the report of the post-mortem examination of the body by the medical officer of the vessel.

"Lungs not congested, and showing nothing to indicate diseased action. No adhesions nor fluid in the pleura. The sac of the pericardium contained a small quantity of serum. General appearance of the heart anæmic, and having the signs of incipient fatty degeneration. Lining membrane and cavities healthy looking, and no deposit, nor morbid action in any of the valves. The left ventricle contained a clot. Arteries, as far as examined in chest and abdomen, free from any evident lesion. Liver, in size, colour, and texture, normal. Gall-bladder distended with bile. Spleen, dark-coloured, but firm, and of natural size. Stomach empty; no change except at pyloric extremity, where towards the orifice some thickening of the muscular fibres was observed. Intestinal tube of natural appearance, and no sign of morbid action noticed in the peritoneal cavity."

A fatal case of disease of the heart occurred in the person of a Marine of the Pearl, who died suddenly in sick quarters at Singapore. He had been sent there for palpitation, and subsequently was invalided. While waiting a passage to England, death suddenly took place. The report of the post-mortem examination of the body has not been received.

Another fatal case of disease of the heart also appears in the returns of the Pearl. It occurred in the person of a stoker who, while drawing coal in the stoke-hold, the ship being under steam, was suddenly seized with pain in the left side, and fell down convulsed, uttering loud cries. He was immediately removed to the sick bay, where he expired in a few minutes. He had been on the list a week previously for ulcer, when some œdema of the legs and paleness and

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puffiness of the face were observed, but these were the only grounds for attributing death to heart disease, no post-mortem examination of the body having been made.

There were two deaths from aortic aneurism; one in the Pelorus, and one in the Slaney.

Diseases of the Alimentary Canal.—There was an increase in all the ratios coming under this head compared with the preceding year, but not to any great extent. Dysentery, diarrhœa, and cholera, were, as usual, fruitful sources of invaliding and death. Of forty-one cases of dysentery, fifteen were invalided, and fifteen proved fatal; and of 594 cases of diarrhœa, thirteen were invalided, and two proved fatal. Three deaths occurred out of six cases of cholera. More than one-half of the deaths from dysentery occurred in the gunboats, the returns from which are defective. It may be stated, however, that from these vessels being almost exclusively employed in the Chinese rivers, their crews are more subject to bowel affections than those of the other ships of the squadron.

The Perseus appears to have had a larger number of cases of bowel affections under treatment than any other vessel of the squadron. Altogether four cases of dysentery, and seventy-five of diarrhœa appear in her returns, and of these one case of dysentery proved fatal. In the notice already taken of the prevalence of remittent fever in this vessel*, its association with diarrhœa was continually referred to, but the surgeon has the following further observations on sixty-five cases of diarrhœa as they came under his notice:—

"Sixty-five cases of diarrhœa have been entered on the sick-list, causing a loss of service of 472 days, or an average of 7·2 days to each case while on board ship. Of these sixty-five cases, twenty-one were sent to hospital, mostly at an early period of the disease. The remaining forty-four, who were entirely treated on board, were on an average 7·8 days each on the sick-list. It must, however, be borne in mind when thus estimating the severity of the disease, that, as a rule, only the milder cases were treated on board the ship. Of the sixty five cases, fifty-five men suffered, of whom six were attacked twice, and two thrice. Of the whole number attacked, forty-four were in the ship during the preceding year, and of these no fewer than twenty-three, or more than one-half, had suffered in that year from fever or bowel disease, chiefly during the outbreak of

* *Ante*, p. 284 *et seq.*

of these diseases at Amoy in July; twelve of them having had diarrhœa, eight fever, and three dysentery.

"As was the case last year, so in this, diarrhœa has been the most prevalent disease, and has existed more or less every month during the period of this Journal. For the first two months of the year, during which time the ship was stationed at Hong Kong, where the thermometer ranged from 51° to 74°, the cases were few, and of no particular importance; but when the ship was visiting Manilla and the Pelew Islands, in the latter part of March and the month of April, when the thermometer ranged between 80° and 90°, the cases became more numerous, fifteen having occurred in April, of whom only two were put on the sick-list. In the month of May, when the ship had by that time returned to Hong Kong, and had been placed in Aberdeen Dock, thirty cases occurred, of which twenty were entered on the list. The disease was not then prevalent amongst the other ships, or in the civil community on shore. The ship left Hong Kong on the 1st of June, and passed the most of that and the remaining months in Japan. During June thirty-two men suffered from diarrhœa, but only thirteen of them required to be put on the sick-list. In July the disease continued to be prevalent, but to a less extent, while following pretty closely the gradual fall of temperature, it decreased in August and September to six cases in each month, the thermometer ranging in these months from 60° to 87°.

"On examining the characters and more prominent features of this disease, we find in thirty-eight out of sixty-five cases entered on the sick-list, that fever, generally well-marked, and frequently of a more or less periodic type, was present during some period of the attack. This fever for the most part began to appear gradually, generally after the diarrhœa had lasted some days; and in a few cases it appeared to follow any diminution which might take place in the latter disease, under treatment. It was always most marked at night, partaking sometimes of the character of remittent, and at others of intermittent fever, and was not unfrequently of so much severity as to be nearly equal in importance to the diarrhœa, and hereby simulating many of the cases of remittent fever before mentioned.* This frequent occurrence of fever was perhaps the most characteristic feature of these cases of flux, and helps materially, I think, in carrying out the view of Dr. Goodeve, that 'diarrhœa may frequently result from malaria at an early period of contamination, and when external impressions are absent.'†

"Although these sixty-five cases have been returned as diarrhœa, yet there were several reasons for doubting if the flux in many instances was due to functional or organic disease of the small intestine alone, and whether the great intestine was not frequently implicated, sometimes, perhaps, even to a greater extent than the former organ. In none, however, while the cases remained in the ship, was blood observed in the stools, and mucus only in a few, but several

* *Ante*, loc. cit. † "Reynolds's Medicine," p. 86.

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several eventually became undoubted dysentery after their removal to hospital. The absence, therefore, of these signs is not sufficient proof that the small intestine alone is the seat of disease, at least in the early stage.

"It was observed that vomiting, more or less persistent, took place in twenty-five of these cases; griping in twenty-three; tenderness on pressure over some part of the abdomen, generally the liver or colon, in eighteen; straining at stool in eighteen, and scalding at the anus on defecation in eight. The dejections varied greatly in quantity, colour, consistence, and odour, not only in the different cases, but in the same case from day to day, so much so that it would be almost impossible to give a concise and clear account of their different characters. The looseness in most of the cases treated on board was almost always worst at night or towards morning, or near the time at which sweating should set in, or remission begin, in cases of periodic fever. The stools generally averaged about ten in the twenty-four hours, but occasionally men would complain that they had been as often as twenty or even thirty times loose in the same period, while others asserted that they had passed the greater part of the night at stool. The tongue was generally, at first, white, but in the more prolonged cases, frequently became of a dirty yellow colour, and rough; while in the cases which presented the most marked dysenteric symptoms, this organ became of a clean red smooth appearance. Anorexia was very general, and almost invariable in those cases in which fever also was present. A certain amount of debility, as might be expected, was present in most of the cases, but this symptom was particularly prominent along with headache and giddiness in the more pyrexial cases, and generally persisted some time after the diarrhœa ceased.

"With one exception, the disease was confined to the men, pointing probably to diet as one of its chief causes. Believing such to be the case was the chief reason for sending so many of the sufferers to hospital at an early stage of the disease.

"*Treatment.*—The chief remedies used in the treatment were, in all the cases where fever, or periodicity of the looseness, was present, quinine combined with opium, or ipecacuan. In the slighter cases Dover's powder, chalk mixture, and morphia were given. The last-named drug was found very efficacious, given in quarter grain doses, three to six times in the twenty-four hours, and although it increased the thirst, yet it did not appear to produce, even in large doses, any bad effects. Soup made of rice and preserved fowl, with most of the fowl taken out, were much relished, and did not appear hurtful. This, of course, was only given at sea, when fresh fowls could not be had. In harbour the strictest care was observed in examining all food brought in the bumboats, and all fruits and vegetables were prohibited to the ship's company, except sound bananas and good potatoes."

In the Adventure there were three cases of dysentery, one of which proved fatal, and twenty-six of diarrhœa. The medical

medical officer makes the following remarks on the ipecacuan treatment of dysentery:—

"Of the remedies employed in the acute forms of dysentery, the benefit derived from the administration of large doses of ipecacuan (a scruple to a drachm) cannot be too frequently impressed on the minds of those who are required to undertake for the first time, the treatment of this formidable disease. The control which ipecacuan appears to exercise over the distressing symptoms, and the alteration for the better in the character of the dejections which almost invariably follows its use, have not, I feel sure, been over-rated by those who are in the habit of extolling its virtues. From half to three quarters of an hour previous to the exhibition of such large doses as half a drachm or a drahm of ipecacuan, a sinapism to the epigastric region, and half a drachm of laudanum should be employed. Aromatic spirits of ammonia will be found a useful vehicle for the medicine. It assists the stomach to accommodate itself to the remedy. Vomiting, of course, sometimes follows, and nausea is seldom absent, to some extent at least, yet after the lapse of three or four hours the ipecacuan may be again repeated with advantage. After a second dose, however, it is enough to give the medicine in much diminished doses, as for instance five grains combined with a quarter of a grain of opium, made into pill with extract of taraxacum, every third hour. A farinaceous diet must be rigidly adhered to, even for some time after the abatement of the acute symptoms, when soups and jellies may be given before hazarding more solid animal food."

With reference to the cases of diarrhœa he had under treatment, he observes:—

"The cases of diarrhœa on the sick book scarcely represent the amount of this complaint treated. Many others, both among the officers and men, were affected in a mild degree, hardly severe enough to exempt them from duty, but (occurring in China) requiring care and management, especially as regards diet, from errors of which the disease no doubt in many instances sprang, and attention to which invariably exerted considerable influence on the duration of the attack. Many of the cases were protracted, assuming a chronic form, and did not recover, nor the bowels regain their tone, till after the lapse of some time spent in Japan. In some of those long-standing cases, the dejections in general were copious, frothy, and light-coloured, and the calls to stool most frequent during the night. There was apparently great deficiency, or even absence of bile in many of the motions. In one or two, even slightly dysenteric stools were observed; all the patients, however, ultimately did well. Though there was no loss to the service through invaliding, the combined 'days' sickness' is rather large. Three of the cases were respectively forty-four, thirty, and twenty-nine days on the sick-list. The great majority of course recovered under very simple measures; abstinence, mild castor oil, or rhubarb aperients, followed, if need be, by astringents, chalk mixture, catechu, &c. In other patients these and other remedies were resorted to,

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and when the more direct astringents failed in their effect, often a combination of grey and Dover's powder, with quinine, was given, and seemed to be of considerable value in checking the bowel complaint. It is, however, quite as probable that change of air had more to do with the cessation of the looseness than the immediate remedies adopted."

The surgeon* of the Basilisk, in which vessel there were only ten cases of diarrhœa throughout the year, says that they were clearly attributable to excesses committed while the men were on leave on shore. He adds:—

"The comparative immunity which the ship's company have enjoyed from diseases of this class is, in my opinion, owing to—

"1st. The ship having been employed in Japan.

"2nd. The use of condensed water whenever impurity was discovered in that obtained from the shore.

"3rd. The prohibition of the use of all unripe and decomposed fruits.

"4th. The habitual use of flannel (or cholera) belts by the men.

"5th. The non-exposure of the nude or lightly covered abdomen to the cool night air on deck during sleep, and during visits to the head.

"6th. The issue of an allowance of hot coffee to each man on turning out in the morning.

"To these circumstances and precautions may also be attributed to a great extent our complete immunity from fevers."

Cholera.—Although only six cases of cholera appear in Table VI., as having occurred in the squadron, there were in fact seven cases altogether, one of which proved fatal being in the person of a seaman of one of the gunboats, from which the returns are defective. His death is noted in Table IV. The disease was probably contracted at Amoy, where the gunboat was stationed. Of the other six cases, five occurred in the Rattler and one in the Rinaldo. One case in the Rattler and that in the Rinaldo proved fatal. The information given with respect to the cases in the Rattler is of the most meagre description. No remark is made as to whether the disease was prevalent or otherwise at Shanghai, where the vessel then was, and all that can be found to have any bearing on the disease is the statement that filtered water was used on board, and that it was good. Condensed water, however, is the only security in a cholera locality. In the fatal case the man was of a bad habit of body, having suffered severely from

* Surgeon T. G. Wilson.

from syphilis, and there being some reason also to think that he laboured under disease of the heart.

The following is the history of the single and fatal case of cholera which occurred in the Rinaldo, as given by the medical officer* of that vessel :—

" . . . . . ship's corporal, applied with symptoms of choleraic diarrhœa, which speedily developed themselves as those of true Asiatic cholera. This man had, it appeared afterwards, premonitory diarrhœa for a few days, but had not complained. Collapse very speedily set in, and the cramps, vomiting, and purging were very severe. Stimulants, calomel, opium, and Stevens' saline mixture, were tried in this case, with sinapisms and epithems to control the vomiting; and ice, soda-water, &c. to assuage thirst; and the patient seemed to be progressing favourably, the cramps, vomiting, and purging having ceased, when suppression of urine set in, and he died on the sixth day. I cannot discover that this man was more exposed than others to the risk of contracting the disease. No leave had been granted to the crew at the time of his illness, and he had been on shore, on duty, two or three times to the Consular Prison, on the island of Kulung Su, opposite Amory. Cholera and choleraic diarrhœa are always more or less present among the Chinese inhabitants of the city of Amoy, which is described as about the filthiest of all the filthy cities of China. No other case occurred among the European population on shore, nor among the shipping at that time, but about a fortnight afterwards, during our trip to the Pescadores, three fatal cases occurred among the merchant shipping (two in the same ship), and I believe there was also a case of a slight description in the gunboat Banterer."

With reference to the prevalence of diarrhœa amongst the ship's company while stationed at Amoy, he remarks :—

" From the 3rd of June to the 12th of September we remained at anchor in Amoy Harbour, with the exception of a short trip to the Pescadores Islands between the 23rd and 29th of August. During the whole of this period the weather was exceedingly hot, a sea-breeze in the forenoon lasting only during July, while the nights were so oppressive, the air scarcely stirring, that most of the crew and officers slept on deck, under awnings. Diarrhœa was very prevalent on board, thirty-five cases having been entered on the sick-list, while several others of a milder description were prescribed for, though the men continued at their duty. In all these the biliary functions were much disturbed, the stools being either white and chalky, or consisting of almost nothing but green biliary matters. Calomel and opium, grey powder with Dover's powder, plain opiates, acetate of lead, and chalk mixture, was the general treatment. Some of the cases, however, were accompanied by great prostration

* Surgeon W. G. Ridings.

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prostration and debility, requiring large quantities of wine and other stimulants; in one case, that of an officer, complicated with stricture, a fatal termination occurred. No fruit having been permitted on board, that at first brought by the bumboats being, as usual in China, plucked before maturity, and the water supplied to the ship being brought from the same source as that supplied to the merchant shipping, among whom no diarrhœa existed, as I was informed by the firm of private practitioners in attendance on them, I can only ascribe these attacks of diarrhœa to the men being insufficiently covered when coming on deck to sleep, often when bathed in perspiration."

A death from constipation appears on Table IV. It occurred in the person of a stoker of a gunboat, but no information has been obtained in connection with it.

Diseases of the Liver and Spleen.—The different ratios under this head were very nearly the same as in the previous year. Thirty-six cases altogether, of various forms of disease, were under treatment, and of these, nine were invalided and three proved fatal.

Diseases of the Genito-Urinary Organs.—There was a trifling decrease in the ratio of cases coming under this head, compared with the preceding year, but the decrease in the invaliding and death rates was considerable. There was an increase in the ratio of cases of primary syphilis to the extent 7·1 per 1000, but in cases of secondary syphilis the decrease was equal to 12·3 per 1,000. Three hundred and twenty-three cases of primary syphilis, and seventy-six of secondary syphilis, were under treatment during the year, and of these, four cases of primary syphilis and one of secondary syphilis were invalided, and one case of secondary syphilis proved fatal. In 1866 no fewer than twenty-nine persons were invalided for secondary syphilis. Each case of primary syphilis was, on an average, between twenty-seven and twenty-eight days under treatment, and each case of secondary syphilis about thirty-five days. Thirty-two men, on an average, were daily unserviceable from these diseases.

Venereal Diseases.—In the Adventure there were fourteen cases of primary and nine of secondary syphilis, and five of gonorrhœa, with respect to which the surgeon says:—

"With the exception of a case of hydrocele, the diseases of the genital organs are all cases of venereal, which, as might have been expected from experience of the station, especially since the opening of, and free intercourse with the Japanese ports, has been frequent, and

and the loss of service, in the aggregate, very considerable. Of the total days' sickness from all diseases, 862 have resulted on board from venereal disease alone, besides two patients healed in hospital, one of whom, cured of a sloughing chancre at the sick quarters at Yokohama, required to be sent for treatment of the secondary affection to the Melville Hospital Ship at Hong Kong

"An ordinance in connection with prostitution, of a most stringent character, contemplated by the Legislature at Hong Kong, and framed with a view of combining the provisions of the Contagious Diseases Act, 1860, with the Act at present regulating brothels, will, if passed into law, and efficiently enforced, go far to exterminate the disease from the colony. Shanghai is still a fertile source of infection, and yet restrictive measures might be adopted with great advantage in all the foreign "Concessions." It would perhaps be more difficult to deal with the Japanese community in their own ports, and this is the more to be regretted, for there can be little doubt that syphilis is more frequently contracted in Japan, and is of a more severe type, than anywhere else on the station."

There were thirty-one cases of primary syphilis, eleven of secondary syphilis, and four of gonorrhœa in the Basilisk. Of these, one case of secondary syphilis proved fatal. The surgeon of the ship makes the following observations on these diseases as they occurred amongst the ship's company:—

"Although forty-six cases are shown in the Return, there were only thirty men entered on the sick-list for venereal diseases during the year, as several men were entered more than once. . . . . Two men were placed on the sick-list four times each; each twice for primary, and twice for secondary syphilis; one man was placed three times on the list for primary syphilis, the sores being soft in the first and second instances, while that which occurred on the third occasion was indurated, with a corresponding induration of the inguinal glands. Two men were placed on the list three times each; one of these was twice on the list for primary, and once for secondary syphilis; the other was once on the list for primary, and twice for secondary syphilis. Six men were placed on the list twice each, on account of venereal diseases; one for a primary sore, once, and six months afterwards for an indurated sore. One man was twice placed on the list for soft sores, in the first instance accompanied by suppurating bubo. One man was twice placed on the list for primary soft sores, in the first instance accompanied by phymosis and followed by venereal warts; on this occasion he was sent to hospital. One man was once on the list for gonorrhœa and paraphymosis, and once for primary syphilis (soft sores); and one man was twice placed on the list on account of syphilis; in the first instance with primary soft sores; in the second for secondary syphilis (condylomata). The other nineteen men were only once each on the sick-list for venereal diseases during the year.

"Buboes occurred in twelve instances with or after soft sores, and were treated by passing a seton of ligature thread through their long axes, poultices, rest, and pressure; and one was discussed. Induration of the inguinal glands accompanied the two indurated

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sores; and in one case in which the sore, at first soft, subsequently became hard, with the access of hardness in the sore the glands in the groin became indurated.

"As a rule, the primary sores were treated without mercury, but this rule has been deviated from in several instances, when such deviation was considered desirable from any cause. The sores were at first cauterised with strong nitric acid, and water dressing was the application generally used afterwards. In those of an indurated character, mercury was exhibited to touch the gums slightly, and then diminished in dose, but its action was still kept up until the sore healed, and the hardness disappeared; they were also cauterised with strong nitric acid, and afterwards, black wash or the mercurial ointment was applied.

"Skin eruptions (roseolar, papular, pustular, and squamous) have been common, and were generally accompanied or followed by periosteal inflammation. Sore throat has not been so common, and iritis has not occurred. Condylomata by the side of the anus has been seen occasionally. These secondary manifestations have followed the soft sores, which are by many considered non-infecting.

"In the treatment of secondary syphilis mercury has been used in every case, apparently with advantage, sometimes in the form of Pil. hydrarg., but more generally the bichloride is given in combination with the iodide of potassium, either in infusion of gentian or cinchona, and at the same time the mercurial vapour bath is often employed. The application of strong hydrochloric acid to condylomata, speedily followed by a dash of cold water, has been found most useful, and the pain occasioned is both slight and transitory, as will be evident from the fact that some men were so treated while performing their usual duties.

"In addition to the number shown as having been entered on the sick-list by this return, there were sixty-eight cases of soft sores on the genitals, and twenty-three cases of gonorrhœa, treated without placing the men on the sick-list. These cases rapidly got well under simple treatment, as they were all seen early. The sores were well cauterised with strong nitric acid in the first instance, and afterwards water dressing was generally used; in a few cases black wash was applied. Attention was paid to the general health, the bowels were kept open, and cleanliness was enjoined. In cases of gonorrhœa seen within two days after the appearance of the discharge, the application of the Tinct. iodin. co. to the urethra as far as the fossa navicularis on two or three occasions, with the administration of soothing demulcent drinks containing alkalies, and a mild aperient mixture, generally effected a cure in a few days. When the disease was seen at a later stage, copaiba mixture, containing alkaline carbonates and bicarbonates, sulphate of magnesia, and tartarised antimony, was given with diluent and demulcent drinks; and when much inflammation and ardor urinæ were present, warm water, with or without starch, was injected, with considerable relief to the patients; and at a later stage, when inflammation had subsided, and the urethral discharge continued from an atonic condition locally and generally, mild astringent injections were used, and tonics, containing Tinct. ferri perchloridi, were given internally.

General

General inspections, about one week after the men have returned from leave, have been made during the year, and have been attended with good results. Petty officers are not actually examined, but are merely asked individually if they are free from venereal disease; the younger men are more minutely examined separately under a screen; and, as far as my experience goes, the men do not object to these examinations, however disagreeable they may be, as the death of one man from syphilis, which he had concealed for some time, has shown them the desirability, and even necessity, of early treatment. It is now rare to find any of them suffering from syphilis or gonorrhœa on inspection, as they generally present themselves for treatment directly they detect disease. Men who have been treated for venereal disease without being placed on the sick-list are subject to the same regulations with regard to leave as are those placed on the list for this disease.

"I may here remark that, during the five months the ship was lying at Nagasaki, from September 1866 to January 1867, very few cases of venereal disease occurred on board; but when we arrived at Yokohama in the latter end of February, and during our stay there at different times subsequently, the increase of the disease was marked; and again, after our visit to Nagasaki, between the 13th and 19th of August, when leave was given, we experienced the bad effects produced by the advent a short time previously of a Russian frigate direct from Yokohama, in which the disease was prevalent, as the prostitutes, who had been pretty free from the disease during our former sojourn there (as evidenced by the very few cases which occurred on board) were nearly all affected with venereal disease on our second visit, and many of our men and a few officers contracted syphilis and gonorrhœa there.

"There is no country in which measures calculated to prevent the continuance and spread of venereal diseases could be more easily carried out than in Japan, as all the prostitutes and brothels are registered by the authorities; and yet considerably more than one-third of the total number of days' sickness from all diseases occurring on board Her Majesty's ship Basilisk (employed in Japan during the whole year) may be attributed to the non-existence of such measures on shore.

"Four cases of primary and one of secondary syphilis were sent to hospital, where one of them died and one was invalided for secondary syphilis; while of the cases entered under the head of rheumatism, that sent to hospital, and one of the two invalided, were of syphilitic origin; and the case of stricture and prostatic enlargement is also attributable, I believe, to a venereal origin. There were thus seven men sent to hospital, two invalided, and one man died from the effects of venereal disease; while from all other causes there were only ten men sent to hospital, three invalided, and two died.

Hakodadi is the only port in Japan which we have visited where there is any attempt made by the Japanese to prevent the spread of venereal disease. At that port those prostitutes who voluntarily present themselves for inspection are examined by a native practitioner, and there is also a small Lock Hospital in the town under his

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superintendence; but although these measures are beneficial, they are not sufficient.

"With regard to the native practice of medicine and surgery, I may observe that native medical practice is seldom actively dangerous, but it is in general passively injudicious and injurious; while the native surgeons, left to their own resources, are timid and vacillating in practice, and are very averse to the performance of even minor surgical operations. This probably arises from ignorance, or rather from a superficial and imperfect knowledge of anatomy and physiology, surgery and pathology."

Of the remaining vessels of the squadron, those which had the largest number of cases of venereal disease were the Princess Charlotte and the Rodney, and in both the disease was contracted at Hong Kong, where it appears the measures of surveillance were somewhat imperfect. The surgeon of the Perseus, remarking on the cases occurring in that vessel, observes:—

"The bulk of the cases were contracted at Hong Kong, a few at Yokohama, and two at Hakodadi. This was owing to the much longer period the ship spent at the first-mentioned place. At Hong Kong good, but as yet imperfect, police regulations affect prostitution. They enforce medical examination of all recognized prostitutes who inhabit the brothels frequented by foreigners, but the laws have not yet put a stop to a large amount of prostitution which is carried on under the guise of different callings, such as washerwomen, boatwomen, &c., nor have efficient steps been taken to prevent the frequent introduction of venereal diseases among these women by the opposite sex."

Diseases not classed.—There were two deaths from pyæmia: one occurred in the person of a boy of the Perseus, who was sent to the Melville Hospital Ship labouring under rheumatism; while there, erysipelas supervened, and he rapidly sank with all the symptoms of pyæmic poisoning. On post-mortem examination of the body a small circumscribed abscess was found in the posterior mediastinum.

The other case also occurred in the person of a boy. He belonged to the Salamis, and had been under treatment for dysentery, from which he appeared to be rapidly recovering, when inflammation of the left knee and elbow set in, followed by suppuration, and seven days afterwards he died of pyæmia. The information in connection with his case is very meagre.

Wounds and Injuries.—There were four deaths from fracture of the skull. Of these one was occasioned by falling from the main-deck to the stoke-hold, two by falling from aloft, and one by being violently thrown down by an explosion of gunpowder. One man during the firing of a salute was

was blown away from the gun and killed; a man sustained fatal concussion of the brain by a cocoa-nut tree falling on him; and a man died from the effects of a fractured thigh caused by the accidental explosion of a cartridge. One man sustained fatal internal injuries by falling from aloft; and one man's head was crushed by machinery.

Eleven men were drowned; six by accidentally falling overboard; one in attempting to swim on shore from a wreck; one in attempting to save a man who had fallen overboard; one by the upsetting of a boat in the surf; and, in two instances, the circumstances under which the men were drowned are not stated.

An officer committed suicide by shooting himself through the chest.

Two men were murdered by the Japanese. An officer died from the effects of alcoholic poisoning; and a man was suffocated by the impaction of food in the upper part of the œsophagus.

The total number of deaths was ninety-five, which is in the ratio of 25·5 per 1,000 of mean force, being an increase, compared with the preceding year equal to 6·6 per 1,000. The death-rate from disease alone was 18·2 per 1,000.

Invalided.– Seven persons were invalided for the sequelæ of fever; fifteen for diseases of the brain and nervous system, nearly one-half of whom were epileptic; twenty-four for diseases of the organs of respiration, two-thirds of whom laboured under pulmonary consumption; twenty-one for diseases of the heart and bloodvessels; twenty-eight for diseases of the alimentary canal, all either labouring under dysentery or dysenteric diarrhœa; nine for diseases of the liver; nine for diseases of the genito-urinary organs; twenty-two for rheumatism; one for gout; one for diseases of the bones and joints; five for diseases of the special senses; fourteen for diseases of the skin and cellular tissue; twenty three for diseases not classed; eight for wounds and injuries of various kinds; and four for hernia. The total number invalided was 191, which is in the ratio of 51·3 per 1,000 of mean force, being a decrease, compared with the preceding year, equal to 5·4 per 1,000.

Taking the average of ten years, there was a decrease in the ratio of cases entered on the sick-list equal to 255·; of invaliding to 14·1; and of mortality to 14· per 1,000 of mean force.

TABLE, No. 1.

SHOWING the Number of CASES of all DISEASES and INJURIES, and the Number INVALIDED and DEAD, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Continued and Remittent Fever	390	121·8	2	·5	5	1·3
Intermittent Fever	148	46·2	5	1·3	—	—
Small-pox	169	52·8	-	-	11	2·9
Measles	4	1·2	—	—	—	—
Scarlatina	5	1·5	-	-	1	·2
Vaccinia	2	·6	—	—	—	—
Varicella	1	·3	—	—	—	—
Disease of the Brain	5	1·5	3	·8	1	·2
Apoplexy	5	1·5	-	-	4	1·
Epilepsy	19	5·9	7	1·8	—	—
Paralysis	3	·9	1	·2	2	·5
Insanity	3	·9	3	·8	—	—
Delirium Tremens	6	1·8	—	—	—	—
Neuralgia	15	4·6	—	—	—	—
Vertigo	11	3·4	—	—	—	—
Insolation	7	2·1	1	·2	—	—
Inflammation of the Lungs and Pleura	50	15·6	4	·1	1	·2
Phthisis and Hæmoptysis	26	8·1	16	4·3	9	2·4
Influenza and Catarrh	412	128·7	3	·8	—	—
Cynanche	82	25·6	—	—	—	—
Asthma	1	·3	1	·2	—	—
Disease of the Heart, Functional and Organic	55	17·1	17	4·5	3	·8
Hæmorrhoids	16	5·	—	—	—	—
Varix	10	3·1	3	·8	—	—
Aneurism	2	·6	1	·2	2	·5
Disease of the Stomach and Bowels	6	1·8	—	—	—	—
Dysentery	41	12·8	15	4·	15	4·
Diarrhœa	594	185·6	13	3·4	2	·5
Cholera	6	1·8	-	-	3	·8
Constipation and Colic	63	19·6	-	-	1	·2
Disease of the Liver	28	8·7	9	2·4	3	·8
Jaundice	7	2·1	—	—	—	—
Splenitis	1	·3	—	—	—	—

TABLE, No. 1.—Showing the Number of Cases of all Diseases, &c.—*continued.*

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	8	2·5	1	·2	—	—
Syphilis, Primary	323	100·9	4	1·	—	—
Syphilis, Secondary	76	23·7	1	·2	1	·2
Gonorrhœa	98	30·6	1	·2	—	—
Orchitis	99	30·9	2	·5	—	—
Stricture	16	5·	—	—	—	—
Incontinence of Urine, &c.	4	1·2	—	—	—	—
Rheumatism	304	95·	22	5·9	1	·2
Gout	3	·9	1	·2	—	—
Disease of the Bones and Joints	16	5·	1	·2	—	—
Inflammation of the Eyes	39	12·1	2	·5	—	—
Amaurosis and Cataract	3	·9	2	·5	—	—
Otitis and Deafness	14	4·3	1	·2	—	—
Erysipelas	6	1·8	—	—	—	—
Scrofula	4	1·2	1	·2	—	—
Bubo (*Symp.*)	81	25·3	—	—	—	—
Phlegmon and Abscess	1,027	320·9	—	—	—	—
Ulcer	473	147·8	11	2·9	1	·2
Psora	2	·6	—	—	—	—
Eruptions, &c.	84	26·2	2	·5	—	—
Dyspepsia and Debility	253	79·	22	5·9	—	—
Dropsy	4	1·2	—	—	—	—
Worms	5	1·5	—	—	—	—
Headache	72	22·5	1	·2	—	—
Pyæmia	-	-	-	-	2	·5
Wounds and Injuries	739	230·9	8	2·1	9	2·4
Burns and Scalds	45	14·	—	—	—	—
Hernia	6	1·8	4	1·	—	—
Drowned	-	-	-	-	11	2·9
Poisoning by Alcohol	-	-	-	-	1	·2
Asphyxia	1	·3	-	-	1	·2
Suicide	-	-	-	-	1	·2
Not stated	-	-	-	-	2	·5
Murdered	-	-	-	-	2	·5
TOTAL	5,998	1874·3	191	51·3	95	25·5

TABLE, No. 2.

SHOWING the Number of DAYS' SICKNESS from each Disease and from Injuries, the Average Number of Men Sick Daily, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Continued and Remittent Fever	3,206	1,139	4,345	11·9	3·1
Intermittent Fever	1,293	85	1,378	3·7	·9
Small-pox	1,093	2,473	3,566	9·7	2·6
Measles	13	10	23	—	—
Scarlatina	30	24	54	·1	—
Vaccinia	9	-	9	—	—
Varicella	7	-	7	—	—
Disease of the Brain	21	59	80	·2	—
Apoplexy	12	17	29	—	—
Epilepsy	149	88	237	·6	·1
Paralysis	8	82	90	·2	—
Insanity	18	161	179	·4	·1
Delirium Tremens	36	18	54	·1	—
Neuralgia	88	11	99	·2	—
Vertigo	117	-	117	·3	—
Insolation	58	37	95	·2	—
Inflammation of the Lungs and Pleura	903	311	1,214	3·3	·8
Phthisis and Hæmoptysis	433	824	1,257	3·4	·9
Influenza and Catarrh	2,424	311	2,735	7·4	1·9
Cynanche	551	32	583	1·5	·4
Asthma	4	-	4	—	—
Disease of the Heart, Functional and Organic	631	806	1,437	3·9	1·
Hæmorrhoids	177	60	237	·6	·1
Varix	122	89	211	·5	·1
Aneurism	35	10	45	·1	—
Disease of the Stomach and Bowels	121	20	141	·3	—
Dysentery	682	1,036	1,718	4·7	1·2
Diarrhœa	3,466	1,116	4,582	12·5	3·3
Cholera	419	27	446	1·2	·3
Constipation and Colic	339	14	353	·9	·2
Colica Pictonum	20	-	20	—	—

TABLE, No. 2.—Showing the Number of Days Sickness from each Disease, &c.—*cont^d.*

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Disease of the Liver	429	498	927	2·5	·6
Jaundice	107	11	118	·3	—
Splenitis	4	239	243	·6	·1
Disease of the Bladder and Kidneys	130	23	153	·4	·1
Syphilis, Primary	6,594	2,600	9,194	25·1	6·7
Syphilis, Secondary	1,458	1,205	2,663	7·2	1·9
Gonorrhœa	1,713	358	2,071	5·6	1·5
Orchitis	1,433	560	1,993	5·4	1·4
Stricture	169	210	379	1·	·2
Incontinence of Urine, &c.	43	-	43	·1	—
Rheumatism	3,622	1,525	5,147	14·1	3·7
Gout	39	40	79	·2	—
Disease of the Bones and Joints	374	20	394	1·	·2
Inflammation of the Eyes	622	160	782	2·1	·5
Amaurosis and Cataract	19	26	45	·1	—
Otitis and Deafness	184	49	183	·5	·1
Erysipelas	69	57	126	3·	—
Scrofula	146	89	235	6·	·1
Bubo (*Symp.*)	1,552	578	2,130	5·8	1·5
Phlegmon and Abscess	8,550	505	9,055	24·8	6·6
Ulcer	7,731	1,111	8,842	24·2	6·5
Psora	7	-	7	—	—
Eruptions, &c.	679	256	935	2·5	·6
Dyspepsia and Debility	2,124	1,333	3,457	9·4	2·5
Scurvy	-	1	1	—	—
Dropsy	16	14	30	—	—
Worms	9	-	9	—	—
Headache	305	37	342	·9	·2
Wounds and Injuries	8,202	1,386	9,588	26·2	7·
Burns and Scalds	487	139	626	1·7	·4
Hernia	130	99	229	·6	·1
Asphyxia	1	-	1	—	—
TOTAL	63,383	21,989	85,372	233·8	62·8

TABLE, No. 3 - - - - - - - - - -

SHOWING the Number INVALIDED from each Ship - - -

CAUSE of INVALIDING.	Adventure.	Algerine.	Argus.	Basilisk.	Cormorant.	Gunboats.	Hesper.	Icarus.	Insolent.	Manilla.	Osprey.
Continued and Remittent Fever	–	–	–	–	–	–	–	–	–	–	–
Intermittent Fever	–	2	–	–	–	–	–	–	–	–	–
Inflammation of the Brain	–	–	1	–	–	1	–	–	–	–	–
Insanity	–	–	–	–	1	–	–	–	–	–	–
Epilepsy	–	2	1	–	–	1	–	–	–	–	–
Paralysis	–	–	–	–	–	–	–	1	–	–	–
Insolation	–	–	–	–	–	–	–	–	–	–	–
Inflammation of the Lungs and Pleura	–	–	1	–	–	1	1	–	–	–	–
Phthisis and Hæmoptysis	2	–	1	–	2	–	–	–	–	–	–
Catarrh	–	–	–	–	–	–	–	–	–	–	–
Asthma	–	–	–	–	–	1	–	–	–	–	–
Disease of the Heart, Functional and Organic	–	1	2	–	–	–	–	2	–	–	–
Varix	–	–	–	–	–	–	–	–	–	–	–
Aneurism	–	–	1	–	–	–	–	–	–	–	–
Dysentery	–	1	–	–	–	2	1	–	–	1	–
Diarrhœa	–	–	–	–	–	1	–	–	–	–	–
Disease of the Liver	–	–	–	–	–	2	–	–	–	–	–
Inflammation of the Kidneys and Bladder	–	–	–	–	–	1	–	–	–	–	–
Syphilis, Primary	–	–	–	–	1	–	–	–	–	–	1
Syphilis, Secondary	–	–	–	–	–	–	–	–	–	–	–
Gonorrhœa	–	–	–	–	–	–	–	–	–	–	–
Orchitis	–	–	–	–	–	–	–	–	–	–	–
Rheumatism	1	–	1	3	1	1	–	–	–	–	–
Gout	–	–	–	–	–	–	–	–	–	–	–
Diseases of the Bones and Joints	–	–	–	–	–	–	–	–	–	–	–
Inflammation of the Eyes	–	–	–	–	–	–	–	–	–	–	–
Amaurosis and Cataract	–	–	–	–	–	–	–	–	1	–	–
Otitis and Deafness	–	–	–	–	–	–	–	–	–	–	–
Scrofula	–	–	–	–	–	–	–	–	–	–	–
Ulcer	–	–	1	2	–	1	–	–	–	–	–
Eruptions, &c.	–	–	–	–	1	–	–	–	–	–	–
Dyspepsia and Debility	–	1	6	–	–	–	–	–	–	–	–
Headache, &c.	–	–	–	–	–	–	–	–	–	–	–
Wounds	–	–	–	–	–	1	–	1	–	–	–
Hernia	–	–	–	–	–		–	–	–	–	–
TOTAL	3	7	15	5	6	13	2	4	1	1	1

- - - - - - - - - TABLE, No. 3.

- - - - - - employed on the CHINA STATION.

Pearl.	Pelorus.	Perseus.	Princess Charlotte.	Princess Royal.	Rattler.	Rifleman.	Rinaldo.	Rodney.	Salamis.	Satellite.	Scylla.	Serpent.	Slaney.	Sylvia.	Zebra.	TOTAL.
–	–	–	–	–	1	–	–	1	–	–	–	–	–	–	–	2
–	–	1	2	–	–	–	–	–	–	–	–	–	–	–	–	5
–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	3
–	–	–	–	–	–	–	–	–	–	1	–	–	–	1	–	3
1	–	–	–	–	–	1	–	–	–	1	–	–	–	–	–	7
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1
–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	4
–	–	3	2	1	2	–	–	–	1	1	–	–	–	1	–	16
–	–	–	–	–	–	–	–	3	–	–	–	–	–	–	–	3
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
4	–	3	1	–	1	–	–	–	–	–	–	2	–	1	–	17
–	–	1	–	–	–	–	1	–	–	–	–	–	–	1	–	3
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
1	1	2	3	–	–	–	–	1	–	–	–	–	1	–	1	15
1	–	8	2	–	–	–	–	–	–	–	–	–	–	1	–	13
–	1	1	–	–	–	1	1	2	–	–	1	–	–	–	–	9
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
1	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	4
–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1
1	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	2
1	1	4	3	–	–	2	–	–	1	3	–	–	–	–	–	22
–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1
–	–	–	–	–	–	–	1	–	–	1	–	–	–	–	–	2
–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1
1	2	–	2	–	–	–	–	1	–	1	–	–	–	–	–	11
–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	2
1	–	–	4	–	1	–	–	2	3	–	–	–	1	3	–	22
–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	1
1	–	1	1	–	2	–	–	1	–	–	–	–	–	–	–	8
1	–	–	–	–	–	–	–	–	–	–	–	2	–	–	1	4
14	5	25	22	1	8	4	4	14	6	9	1	7	2	9	2	191

TABLE, No. 4. - - - - - - - -

SHOWING the Number of DEATHS in each - - - -

CAUSE OF DEATH.	Adventure.	Algerine.	Argus.	Basilisk.	Cormorant.	Gunboats.	Hesper.	Icarus.	Leven.	Manilla.
Continued and Remittent Fever -	–	–	1	–	1	–	–	–	1	–
Small-pox - - - - -	–	–	–	–	–	–	–	–	–	–
Scarlatina - - - - -	–	–	–	–	–	–	–	–	–	–
Inflammation of the Brain - -	–	–	–	–	–	–	–	–	–	–
Apoplexy - - - - -	–	–	2	–	–	–	–	–	–	–
Paralysis - - - - -	–	–	–	–	–	–	–	1	–	–
Inflammation of the Lungs and Pleura - - - - -	–	–	–	–	–	–	1	–	–	–
Phthisis - - - - -	–	–	1	–	1	–	–	–	–	–
Disease of the Heart - - -	1	–	–	–	–	–	–	–	–	–
Aneurism of Aorta - - -	–	–	–	–	–	–	–	–	–	–
Diarrhœa - - - - -	–	–	–	–	–	–	–	–	–	–
Dysentery - - - - -	1	–	–	–	–	8	–	–	–	1
Cholera - - - - -	–	–	–	–	–	1	–	–	–	–
Constipation and Colic - -	–	–	–	–	–	1	–	–	–	–
Disease of the Liver - - -	–	–	–	–	–	1	–	–	–	–
Syphilis, Secondary - - -	–	–	–	1	–	–	–	–	–	–
Rheumatism - - - -	–	–	–	–	–	–	–	–	–	–
Ulcer - - - - -	–	–	–	–	–	–	–	–	–	–
Pyæmia - - - - -	–	–	–	–	–	–	–	–	–	–
Wounds and Injuries - - -	–	1	1	1	–	–	–	–	–	–
Drowned - - - - -	1	–	–	–	–	–	–	1	–	–
Suicide - - - - -	–	–	–	1	–	–	–	–	–	–
Murdered - - - - -	–	–	–	–	–	–	–	2	–	–
Not stated - - - -	–	–	–	–	–	2	–	–	–	–
Alcoholic Poisoning - - -	–	–	–	–	–	–	–	1	–	–
Asphyxia - - - - -	–	–	–	–	–	–	–	–	–	–
TOTAL - - -	3	1	5	3	2	13	1	5	1	1

TABLE, No. 4.

Ship employed on the CHINA STATION.

Osprey.	Pearl.	Pelorus	Perseus.	Princess Charlotte.	Princess Royal.	Rattler.	Rifleman.	Rinaldo.	Rodney.	Salamis.	Satellite.	Serpent.	Slaney.	Zebra.	TOTAL.
–	–	–	–	1	–	–	1	–	–	–	–	–	–	–	5
–	–	–	–	–	8	–	–	–	–	–	–	3	–	–	11
–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	1
–	–	–	–	–	–	–	–	–	–	a1	–	–	–	–	1
–	1	–	–	–	–	–	–	1	–	–	–	–	–	–	4
–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	1	–	1	2	–	1	1	–	1	–	–	–	9
–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	3
–	–	1	–	–	–	–	–	–	–	–	–	–	1	–	2
–	1	–	–	–	–	–	–	1	–	–	–	–	–	–	2
–	1	–	1	–	1	1	1	–	–	–	–	–	–	–	15
–	–	–	–	–	–	1	–	1	–	–	–	–	–	–	3
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	1	–	1	–	–	–	–	–	3
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1
–	–	–	1	–	–	–	–	–	–	1	–	–	–	–	2
1	–	–	2	1	–	1	–	–	–	–	1	–	–	–	9
1	1	–	1	–	–	1	–	–	–	1	1	–	2	1	11
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	b1	–	–	–	–	1
3	6	1	6	3	11	6	3	4	2	4	3	4	3	1	95

a Abscess. *b* By food.

TABLE, No. 5.

SHOWING the Names of the SHIPS; the Average Complements, &c.; the Number of Cases; Daily, in each Ship; and the

C. Commissioned. P. O. Paid off.

Rate, &c.	NAMES OF SHIPS.	Where Commissioned.	When Commissioned.	Number of Guns.	Tonnage.	Horse Power.
Second Rate	Princess Royal	Devonport	15 Feb. 1864	73	3,129	S. 400
	Rodney	Sheerness	21 Jan. 1867	72	2,770	S. 500
Sixth Rate	Pearl	Portsmouth	5 May 1866	17	1,469	S. 400
	Pelorus	Devonport	11 Sept. 1863	21	1,464	S. 400
	Satellite - S. C.	Devonport	30 Oct. 1866	21	1,462	S. 400
	Scylla	Sheerness	9 Sept. 1863	21	1,467	S. 400
Sloop	Argus - S. C.	Hong Kong	23 Jan. 1866	6	981	P. 300
	Basilisk	Sheerness	16 Sept. 1865	6	1,031	P. 400
	Icarus - D.	Sheerness	28 Feb. 1866	3	580	S. 150
	Perseus	Hong Kong	23 Jan. 1866	15	955	S. 200
	Rattler	Hong Kong	19 Jan. 1866	17	952	S. 200
	Rinaldo	Portsmouth	1 Nov. 1866	7	951	S. 200
	Zebra	Woolwich	13 Feb. 1867	7	951	S. 200
Gun Vessel	Algerine	Shanghae	8 Nov. 1864	3	299	S. 80
	Cormorant	Hong Kong	23 Jan. 1866	4	695	S. 200
	Leven - C.	Hong Kong	25 May 1867	3	300	S. 80
	Osprey	Woolwich	3 Jan. 1863	4	682	S. 200
	Serpent	Sheerness	18 April 1865	4	695	S. 200
	Slaney	Shanghae	8 Nov. 1864	3	301	S. 80
Steam Vessel	Manilla - D.	Shanghae	1 Feb. 1866	–	295	S. 70
	Salamis	Portsmouth	1 Jan. 1866	2	835	P. 250
Gunboat	Insolent	Chefoo	22 Nov. 1864	2	233	S. 60
Surveying Vessel	Rifleman	Hong Kong	31 Mar. 1866	4	486	S. 100
	Sylvia	Woolwich	12 Oct. 1866	5	695	S. 150
Troop Ship	Adventure - P. O. & R. C.	Hong Kong	28 May 1867	2	1,794	S. 400
Store Ship	Hesper	Hong Kong	23 Jan. 1866	2	808	S. 150
Receiving Ship	Princess Charlotte	Hong Kong	1 Jan. 1866	12	2,443	–

TABLE, No. 5.

the Total Number of Days' Sickness on Board; the Average Number of Men Sick Number Discharged to Hospital.

S. C. Station changed. D. Returns defective.

Period.	Average Complements.	Average Complements corrected for Time.	Number of Cases of Disease and Injury.	Number of Days' Sickness on Board.	Average Number of Men Sick Daily for Twelve Months.	Ratio per 1,000 of Average Force of each Ship.	Number Discharged to Hospital.
1 Jan. to 31 Mar.	790	200	229	2,296	6·2	31·	70
1 Oct. to 31 Dec.	770	190	422	3,999	10·9	57·3	72
Year - -	250	250	509	5,271	14·4	57·6	46
Year - -	260	260	224	3,682	10·	38·4	10
1 Jan. to 30 Sept.	300	225	475	4,982	13·6	60·4	18
1 Jan. to 31 Mar.	270	70	64	995	2·7	38·5	10
1 Jan. to 30 Sept.	170	130	269	2,314	6·3	48·4	37
Year - -	180	180	254	2,991	8·	44·4	17
Year - -	125	125	209	1,630	4·4	35·2	3
Year - -	170	170	410	4,153	11·3	66·4	72
Year - -	175	175	328	2,681	7·3	41·7	50
1 April to 31 Dec.	175	130	313	4,192	11·4	87·6	25
1 July to 31 Dec.	160	80	159	1,492	4·	50·	5
Year - -	50	50	123	953	2·6	52·	11
Year - -	90	90	156	1,551	4·2	46·6	15
25 May to 31 Dec.	55	30	93	1,163	3·1	103·3	4
1 Jan. to 31 Mar.	85	20	29	379	1·	50·	4
Year - -	90	90	242	2,817	7·7	85·5	35
Year - -	50	50	127	1,210	3·3	66·	16
Year - -	50	50	67	950	2·6	52·	5
Year - -	75	75	211	1,935	5·3	70·6	24
Year - -	40	40	27	306	·8	20·	2
Year - -	90	90	98	1,214	3·3	36·6	11
1 July to 31 Dec.	85	40	115	1,499	4·1	102·5	13
Year - -	165	165	324	3,645	9·9	60·	13
1 Jan. to 30 June	70	35	57	568	1·5	42·8	4
Year - -	190	190	464	4,494	12·3	64·7	32

TABLE, No. 6. - - - - - - - -

SHOWING the Number of CASES of all DISEASES and - - - - - -

DISEASE OR INJURY.	Adventure.	Algerine.	Argus.	Basilisk.	Cormorant.	Hesper.	Icarus.	Insolent.	Leven.	Manilla.	Osprey.	Pearl.
Continued and Remittent Fever	25	–	8	–	1	2	16	1	13	–	2	83
Intermittent Fever - - -	1	26	3	–	2	1	7	–	2	–	–	8
Small Pox - - - - - -	1	–	3	1	–	–	–	–	–	1	–	–
Scarlatina - - - - - -	–	–	–	–	–	–	–	–	–	–	–	–
Measles - - - - - -	–	–	–	–	–	–	–	–	–	*b* 1	–	*b* 2
Varicella - - - - - -	–	–	–	–	–	–	–	–	–	–	–	–
Vaccinia - - - - - -	–	–	2	–	–	–	–	–	–	–	–	–
Disease of the Brain - - -	–	–	3	–	–	–	–	–	–	–	–	–
Apoplexy - - - - - -	–	–	3	–	–	–	–	–	–	–	–	1
Epilepsy - - - - - -	–	3	1	1	1	2	2	–	–	–	–	1
Paralysis - - - - - -	–	–	–	–	–	–	–	–	–	–	–	–
Insanity - - - - - -	–	–	–	–	1	–	–	–	–	–	–	–
Delirium Tremens - - - -	2	–	–	–	–	–	–	–	–	–	1	–
Neuralgia - - - - - -	–	–	2	–	1	1	1	–	–	1	–	–
Insolation - - - - - -	–	–	–	–	–	–	1	–	–	–	–	–
Vertigo - - - - - -	–	–	–	–	–	–	–	–	–	1	–	3
Inflammation of the Lungs and Pleura - - - - -	2	–	2	3	4	1	3	–	–	2	–	5
Phthisis and Hæmoptysis - -	2	–	1	–	5	–	–	–	1	–	–	–
Influenza and Catarrh - -	11	9	35	33	9	6	5	–	2	5	–	26
Cynanche - - - - - -	4	–	3	10	2	–	2	–	–	–	1	7
Asthma - - - - - -	–	–	–	–	–	–	–	–	–	–	–	–
Disease of the Heart, Functional and Organic - - - -	1	–	8	–	–	–	2	–	–	–	–	8
Aneurism - - - - - -	–	–	–	–	–	–	–	–	–	–	–	–
Hæmorrhoids - - - - -	2	–	–	3	–	–	2	–	–	–	–	–
Varix - - - - - -	–	–	–	–	–	–	–	–	–	–	1	1
Inflammation of the Stomach and Bowels - - - - -	–	–	–	–	1	–	–	–	–	–	–	*c* 1
Cholera - - - - - -	–	–	–	–	–	–	–	–	–	–	–	–
Dysentery - - - - - -	3	1	2	–	1	–	1	1	–	–	–	7
Diarrhœa - - - - - -	26	9	12	10	29	4	23	–	9	3	–	56
Constipation and Colic - -	4	3	3	–	–	3	1	–	1	–	2	3
Inflammation of the Liver - -	–	1	–	–	1	1	3	–	1	–	–	5
Jaundice - - - - - -	1	–	–	–	–	–	–	–	–	–	–	–
Splenitis - - - - - -	–	–	–	1	–	–	–	–	–	–	–	–
Inflammation of the Bladder and Kidneys - - - - -	–	–	–	1	–	–	–	–	–	–	–	–
Syphilis, Primary - - -	14	1	13	31	15	2	14	3	–	10	3	8
Syphilis, Secondary - - -	9	–	–	11	1	–	–	–	–	–	–	6
Gonorrhœa - - - - -	5	1	3	4	2	–	4	2	1	–	1	7
Orchitis - - - - - -	16	2	5	2	2	1	4	1	2	4	1	2
Stricture of the Urethra - -	–	2	–	1	–	–	–	–	1	1	–	1
Incontinence of Urine, &c. - -	–	–	–	1	–	–	–	–	–	–	–	–
Rheumatism - - - - -	32	10	19	9	6	9	1	–	5	5	3	11
Gout - - - - - - -	–	–	–	–	–	–	–	–	–	–	–	–
Disease of the Bones and Joints -	–	–	–	1	–	–	1	–	–	–	–	–
Inflammation of the Eyes - -	1	1	1	2	1	–	2	1	2	–	–	–
Amaurosis and Cataract - -	–	–	–	–	–	–	–	–	–	–	–	–
Otitis and Deafness - - -	–	2	–	–	–	–	–	–	–	–	–	–
Erysipelas - - - - - -	–	–	–	1	–	–	–	–	–	–	–	–
Scrofula - - - - - -	–	–	–	–	–	–	–	–	–	–	–	–
Bubo (*Symp.*) - - - -	–	3	3	4	5	–	1	–	2	1	–	–
Phlegmon and Abscess - -	58	21	39	66	25	4	74	11	30	3	–	5
Ulcer - - - - - -	29	9	29	16	19	6	5	–	5	16	4	72
Psora - - - - - -	–	–	–	–	1	–	–	–	–	4	5	60
Eruptions, &c. - - - -	1	–	2	2	5	–	1	–	4	–	–	–
Dyspepsia and Debility - -	23	7	14	12	6	4	6	5	3	4	2	5
Headache, &c. - - - -	2	4	11	–	–	–	3	–	4	1	–	30
Dropsy - - - - - -	–	–	*a* 1	–	*a* 3	–	–	–	–	–	–	18
Worms - - - - - -	–	–	1	–	–	–	–	–	–	–	–	–
Wounds and Injuries - - -	48	8	32	25	6	8	23	2	5	4	2	65
Burns and Scalds - - -	1	–	5	3	1	–	1	–	–	–	1	2
Hernia - - - - - -	–	–	–	–	–	2	–	–	–	–	–	–
Asphyxia - - - - - -	–	–	–	–	–	–	–	–	–	–	–	–
TOTAL - - -	324	123	269	254	156	57	209	27	93	67	29	509

a Œdema. *b* Roseola. *c* Hæmatemesis. *d* Erythema. *e* Tænia.

TABLE, No. 6.

INJURIES in each SHIP employed on the CHINA STATION.

Pelorus.	Perseus.	Princess Charlotte.	Princess Royal.	Rattler.	Rifleman.	Rinaldo.	Rodney.	Salamis.	Satellite.	Scylla.	Serpent.	Slaney.	Sylvia.	Zebra.	Total.
–	56	27	2	27	6	11	12	55	16	–	13	5	1	8	390
10	14	30	3	6	4	3	1	17	–	–	2	4	2	2	148
1	2	1	117	7	–	1	–	–	–	10	21	3	–	–	169
–	–	–	–	–	–	–	–	1	–	–	4	–	–	–	5
–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	4
–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	1	–	1	–	5
–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	5
1	–	–	–	1	1	–	1	–	1	1	2	–	–	–	19
–	–	–	1	2	–	–	–	–	–	–	–	–	–	–	3
–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	3
–	–	3	–	–	–	–	–	–	–	–	–	–	–	–	6
–	–	1	–	2	–	1	1	1	1	–	1	–	–	1	15
1	2	1	–	–	–	–	–	1	–	–	–	–	1	–	7
–	–	–	–	–	–	3	–	–	–	2	–	1	1	–	11
1	2	4	6	2	1	2	1	–	1	–	6	2	–	–	50
–	3	3	1	4	–	–	–	2	2	–	1	–	–	1	26
–	14	25	13	21	–	18	78	3	45	11	16	12	15	–	412
1	2	2	6	2	2	4	11	2	2	2	6	1	2	8	82
1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
1	4	4	3	3	–	9	–	–	6	–	2	1	3	–	55
1	–	–	–	–	–	–	–	–	–	–	–	1	–	–	2
–	2	–	1	1	–	–	2	–	1	–	1	1	–	–	16
–	2	1	–	–	–	1	–	2	–	–	1	–	1	–	10
–	–	–	–	–	*f* 1	–	*h* 1	–	–	1	1	–	–	–	6
–	–	–	–	5	–	1	–	–	–	–	–	–	–	–	6
4	4	1	4	3	2	–	1	2	1	–	–	–	–	3	41
5	75	72	–	55	6	44	54	22	24	3	14	10	26	3	594
2	4	3	–	7	1	11	1	–	2	–	4	–	2	6	63
3	–	1	1	1	–	–	7	1	–	–	1	–	–	1	28
1	–	1	–	–	–	–	1	1	1	–	1	–	–	–	7
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	2	2	1	–	1	–	–	–	1	–	–	–	–	–	8
19	11	38	3	16	13	12	40	5	12	11	8	8	4	9	323
4	10	5	5	12	–	4	–	–	5	–	3	1	–	–	76
5	3	2	–	3	3	16	14	1	3	–	5	3	3	2	98
10	9	7	4	7	1	4	1	–	–	3	2	6	1	2	99
1	–	–	–	1	2	1	–	–	1	–	–	3	–	1	16
–	–	1	–	–	–	–	1	–	–	–	–	1	–	–	4
27	16	32	5	24	6	12	10	18	18	3	7	2	3	11	304
1	–	–	–	–	–	–	2	1	–	–	–	–	1	–	3
–	2	–	–	1	2	1	2	4	–	–	1	–	1	–	16
2	3	7	3	2	–	2	1	–	3	–	2	–	2	1	39
–	–	1	–	1	–	1	–	–	–	–	–	–	–	–	3
1	–	2	–	–	1	1	–	–	3	–	3	–	–	1	14
d 1	*d* 1	–	–	–	–	2	*d* 1	–	–	–	–	–	–	–	6
1	–	–	–	–	–	–	–	–	1	–	–	–	–	1	4
2	2	1	4	16	1	7	6	2	2	3	6	1	2	–	81
45	63	44	7	43	14	55	65	19	163	*i* 5	20	15	10	39	1,027
10	46	29	16	8	5	25	29	6	54	1	19	11	12	15	473
–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	2
4	4	7	1	1	–	7	2	2	22	2	4	3	2	3	84
7	5	22	2	7	1	13	27	12	–	1	16	9	7	8	253
–	1	3	–	–	–	10	–	–	1	–	9	1	1	3	72
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4
–	–	*e* 1	–	–	–	–	–	–	2	–	*e* 1	–	–	–	5
46	45	75	18	36	15	30	50	27	75	5	33	18	10	28	739
4	1	5	1	1	4	–	1	3	3	–	3	3	1	1	45
1	–	–	–	–	–	–	–	–	–	–	2	–	–	1	6
–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	1
224	410	464	229	328	98	313	422	211	475	64	242	127	115	159	5,998

f Prolapsus ani. *g* Hemeralopia. *h* Prolapsus recti, *i* Fistula.

AUSTRALIAN STATION.

Australian Station

THE squadron on the Australian station in 1867 comprised six vessels, of which four were of the sixth rate, and two were sloops. There was also a small detachment of marines at Somerset, Cape York, North Australia. The mean force, corrected for time, was 950, and the total number of cases of disease and injury entered on the sick-list 1,523, which is in the ratio of 1603·1 per 1,000 of force, being an increase, compared with the preceding year, equal to 104·6 per 1,000.

The daily loss of service from febrile diseases was in the ratio of 1· per 1,000; from diseases of the brain and nervous system, ·4; of the organs of respiration, 5·; of the heart and bloodvessels, ·5; of the alimentary canal, 1·5; of the genito-urinary organs, 7·3; from rheumatism, 3·7; gout, ·1; diseases of the bones and joints, ·8; from diseases of the special senses, 1·2; of the skin and cellular tissue, 12·7; from diseases not classed, 1·8; and from wounds and injuries of various kinds, 11·8. The average number of men sick daily was 48·4, which is in the ratio of 50·9 per 1,000 of mean force, beingan increase, compared with the daily sick-rate of the preceding year, equal to 7·2 per 1,000.

Fevers.—Thirty-four cases of continued and remittent fever, one of ague, and two of measles were under treatment during the year, of which three cases of primary fever terminated fatally. Each case of primary fever was between thirteen and fourteen days under treatment; the case of ague, four days; and each case of measles, six days.

Continued and Remittent Fevers.—There were nine cases of primary fever in the Brisk, five of which are classed as continued, and four febricula. The average duration of each case of the former type of fever was about sixteen days, and of the latter between six and seven days. Four of the cases of continued fever occurred in the month of September, when

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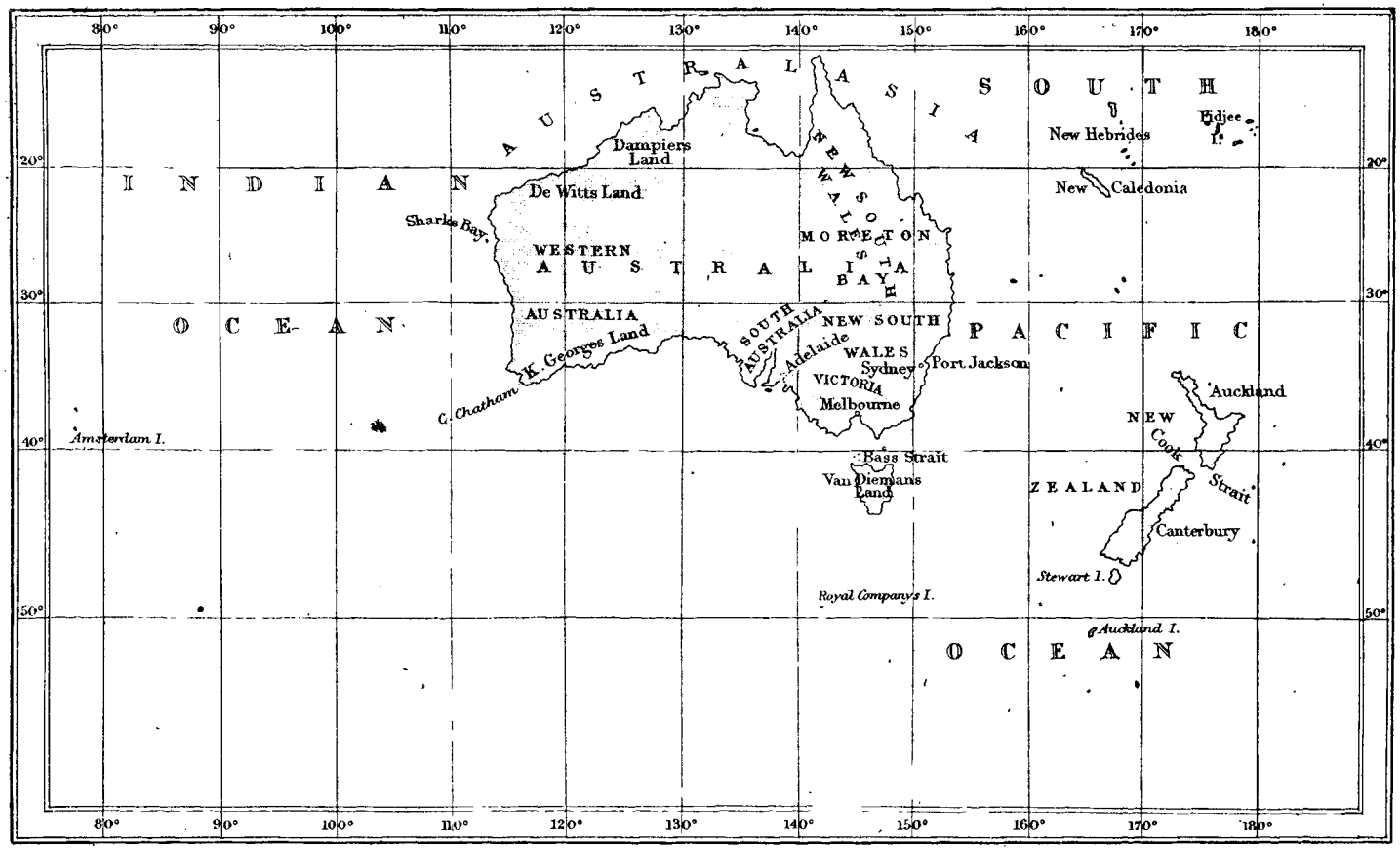

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when the vessel was at Sydney; and with reference to them the surgeon* makes the following remarks :— Australian Station.

"The disease was contracted at Sydney, and three of the cases were of a low typhoid or enteric type, characterised chiefly by persistent headache, anorexia, prostration of strength, and diarrhœa. Rose spots were present on the chest and abdomen, and relapses took place frequently during convalescence, especially after any error of diet. The average duration of each case was twenty-two days. . . . . The fourth case was of an ephemeral character, depending, probably, on exposure and dissipation, and was only eight days under treatment.

"With respect to the cause of these febrile attacks, I believe they must be attributed to the inhalation of an atmosphere rendered impure by the emanations of mephitic gases, as the drainage at Sydney is most defective, owing to open cesspools abounding in all directions, and most of the houses being unconnected with sewers. The consequence is, that typhoid fever prevails in the town to a large extent, although not in a very severe form. Several sewers open into the harbour near the anchorage, and, although the outfall pipes are carried out to a distance which it had been assumed would ensure the complete removal of the sewage by tidal influence, it is found that the pipes get choked up with sand, and the sewage leaks out at the joints, and is often floated back to the beach, so that the probability is that a large proportion of the fæcal matter cast into the harbour at the drainage outlets never goes far away, while the residue is deposited at other parts of the beach, and thus endangers public health. Certainly the effect of this sewage upon the water area in the vicinity of the anchorage is often disagreeably perceptible, especially at night. The removal of water-closets and the substitution of dry earth closets is to be recommended for a town like Sydney, where there is little fall for drainage."

In the Challenger, there were three cases of primary fever, two of which proved fatal. Both these were cases of enteric fever, and were contracted at Sydney, where the disease prevailed extensively on shore. One instance was that of a young officer, who had always enjoyed good health until about ten days previous to his being placed on the sick-list, when he began to be affected with headache, anorexia, and lassitude, with a tendency to constipation. He took an occasional aperient during this time, and had some tonic infusion given him; but, as there were no indications of improvement in his general condition, and the headache was becoming more severe, he was placed on the sick-list on the 22nd of April. On the 27th, being still in a low languid state, with only trifling

* Surgeon W. D. Smyth, M.D.

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trifling pyrexial symptoms, he complained of pain and tenderness over the abdomen, and a rose-coloured eruption was observed over the epigastric region. On the following day he had been frequently purged, and had also passed some blood. The abdomen was slightly tympanitic, and the eruption more abundant. The abdominal pain was chiefly confined to the right iliac fossa. Under the treatment to which he was subjected these symptoms began to decline, and he appeared to be improving steadily until the evening of the 5th of May, when diarrhœa returned, with severe griping pains in the abdomen. During the night he was frequently purged, the stools being slimy and tinged with blood. Great irritability of the stomach now set in, and he could not retain any nourishment, even of a fluid character. On the 9th of May he still complained of severe griping pains in the abdomen, which was much swollen and tender. On the following day he died. For some time previous to his death there were evident signs of perforation, and the vomiting, which was constant, became stercoraceous. On investigating the cause of the sudden return of unfavourable symptoms on the evening of the 5th of May, it was ascertained that on that day, when he was apparently convalescing steadily, he had, without the knowledge of the medical officers, procured some plum-pudding from his mess, of which he had partaken, and to this indiscretion the fatal termination of the case is in some measure attributed.

The other fatal case occurred in the person of a young and powerful seaman, who, a few days previous to his being placed on the sick-list, had formed one of the crew of a cutter pulling in a contested race. After violent exercise, he had gone on shore on leave at Sydney, where he remained all night, fever being prevalent in the locality. He presented himself on the 20th of June, complaining of severe headache, lumbar pains, and a feeling of general debility. The tongue was coated with a white fur, and tremulous; the bowels were confined, the skin hot, the pulse frequent, and there was anorexia. On the following day the febrile symptoms were more marked; there was increased heat of skin; the pulse was 110; the tongue dry, and coated with a brownish fur; there was severe headache; and the eyes were suffused, dull, and heavy. On the 24th, diarrhœa set in, the stools being of the characteristic pea-soup appearance; and rose-coloured spots were observed over the abdomen. The heat of skin was very great, the thermometer in the axilla rising to 110°. The pulse was 120, and small; the eyes were congested, and there was

was low muttering delirium. He continued in much the same condition until the 28th, requiring constant attention by day and night, and frequent changes of linen; and the evacuations, both of the bowels and bladder, were passed involuntarily. On the night of the 28th a marked remission of the febrile symptoms took place, the skin becoming cooler and moist, and the frequency of the pulse being diminished. After enjoying a few hours' tranquil sleep, he appeared more rational; and so marked an improvement was apparent in his condition that hopes were beginning to be entertained that the case might progress favourably. During the night, however, a sudden return of unfavourable symptoms took place; cold clammy sweats broke out over the body, the tongue became dry, the irritability of the stomach returned, and he was unable to retain any drinks. The respiration became embarrassed, the pulse more and more feeble, and there were evident indications of approaching dissolution. In this condition he remained until the afternoon of the 29th, when he expired. The extreme severity and rapidly fatal termination of this case were, in all probability, dependent in some degree on the unfavourable circumstances under which the poor fellow imbibed the poison. Exhausted after a day of unusual and very violent exertion, and drinking, probably to excess, on shore, the system was brought into a condition to be peculiarly susceptible of the influence of any morbid poison, and to be little capable of resisting its effects.

There were eleven cases of primary fever in the Charybdis, all of which are classed as febricula. The average duration of each case was between ten and eleven days. They occurred in the Christmas quarter of the year, when the vessel was at Sydney, and were in many instances associated with a peculiar form of diarrhœa which was prevalent at the time, and which was attributed to the influence of high temperature, with frequent and sudden changes towards night.

In the Esk there were two cases of primary fever, one of which was of the enteric type, and proved fatal. The other was a case of simple continued fever, and was of thirteen days' duration. The fatal case occurred in the person of a domestic, and was marked by the abdominal tenderness, diarrhœa, and eruption, characteristic of the disease. He was attacked at Adelaide, and the onset of the disease appears to have been hastened by his imprudently bathing overboard on the evening when he was not feeling well, and had not been for some days. Immediately on coming out of

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the water he was seized with rigors, which appear, however, to have subsided in a short time, for he did not present himself for treatment for three days afterwards. He then complained of headache and general malaise; the skin was hot, the tongue white, and rather dry, and the pulse 90. The disease ran an exceedingly rapid course, and he died on the eighth day. The Esk had left Melbourne for Adelaide on the 13th of February, arriving there on the 25th. On the 28th the man was placed on the sick-list. The surgeon* says:—

"It is worthy of mention that this man had his usual leave of four days at Melbourne, and from the inveterate type this fever assumed in its course, attention was naturally directed to its origin. On our return to Melbourne from Adelaide we were informed that our boatman at the former place was laid up with the same type of fever, which was also prevalent to some extent at Sandridge, the port town of Melbourne. The deceased was in the habit, while on leave, of sleeping at the boatman's house, and there is therefore the greatest probability that the germs of the fever were received there. I cannot by any other line of reasoning trace the source of the fever, as the man complained of indisposition a week before he bathed, three days after which he presented himself."

There were two cases of primary fever in the Falcon. Both were of the enteric type. One occurred at Sydney, where the disease was prevalent, in the person of a mess-servant, who, from the nature of his duties, had frequent intercourse with the shore; the other in the person of a young officer, while the vessel was on her voyage from New Caledonia to Sydney. No information is given in this case as to the probable source whence the fever poison was acquired. The characteristic symptoms of the disease were, however, well marked, and convalescence was retarded by one or two relapses. The average duration of each of these cases was twenty-nine days.

In the Salamander there were seven cases of primary fever. They were of the remittent type, and occurred during and subsequent to a short stay at Batavia on the voyage homewards of the vessel. The surgeon* says:—

"At Batavia we lay for six days, and while there three cases of remittent fever occurred, and four more after leaving it. This fever is

* Surgeon George Duncan, M.D.
† Surgeon Alexander Rattray, M.D.

is common here, especially towards the end of the rainy season (which however had not then commenced) and also when a westerly wind occurs after rain, and is most apt to seize those who sleep in the open air. Two of the three first attacked, which occurred after lying three days in the roadstead, when the weather was fine but sultry, acknowledged having slept at night on the upper deck.

"Along this part of the coast of Java the sea breeze blows during the day, and at night the land breeze, which comes over the low, muddy, and marshy land that environs Batavia for miles around, especially to the westward of the bay. Although in the monsoon region the south-east monsoon is not felt on this part of the coast of Java, or indeed along the greater part of its north coast, being interrupted in its course by the lofty mountain range which runs along the whole length of this island. Hence while the south-east or east monsoon prevails along the south, or ocean-bathed coast of Java, which is rocky, precipitous, and mountainous; it is chiefly sea and land breezes which blow along its northern coast, which, unlike the former, is flat, densely tree-clad, and malarious. On the 3rd, *i. e.*, the day of seizure of the first cases, we steamed to Onrust, a small island two miles off, where the same morbific influences prevailed, but under different circumstances. A drizzling rain fell, followed by a westerly wind, blowing from over the densely-wooded low-lying marshy land, one and a-half miles distant, that forms the west side of the bay, and carrying with it, in the afternoon and evening, disagreeable marshy effluvia; the very conditions in which fever is most likely to appear. Quinine in two grain doses, with a quarter of a gill of rum per man, was issued that night, and repeated next day (the 4th of September) morning and night. Early on the following day we left for the Cape of Good Hope. Two slight cases occurred on the 7th; one on the 8th, and another on the 16th. Except the last, which was eleven days on the sick-list, all proved slight, doubtless from the limited stay in the miasmatic atmosphere, and the efficacy of the preventive measures employed to counteract its influence."

Eruptive Fevers.—Two cases of measles occurred in the Esk at Sydney in the persons of two young officers, who doubtless had contracted the disease on shore, where it was prevailing extensively as an epidemic. In one case the patient was sent on shore on suspicion of his symptoms being premonitory of an eruptive fever, and there the disease developed itself; in the other case, however, the vessel had sailed for England before suspicious symptoms appeared, and he consequently had to be retained and treated on board. He was carefully isolated from his messmates and the rest of the ship's company, and the disease fortunately did not spread.

Diseases of the Brain and Nervous System.—There was a reduction to the extent of nearly one half in the ratio of cases

 coming

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coming under this head compared with the preceding year, but the invaliding rate was very nearly the same, and the death-rate was fractionally higher. Fifteen cases altogether were entered on the sick-list, of which four were invalided, and one proved fatal. In this latter case the disease assumed the character, first of melancholia, but ultimately of acute mania. During the first phase of the disease, the patient, a petty officer, made three attempts to commit suicide. The attack was caused, it is said, by the depressing effects produced by perusing the disgusting pamphlets of some advertising impostor, with whom he appears to have engaged in correspondence. He was ultimately sent to the lunatic asylum at Tarban Creek, where he died two months after his admission. In one of his attempts at suicide he had inflicted a severe wound on his left forearm, dividing the radial recurrent artery. As the wound healed the mental disease suddenly changed to acute mania, when he became fierce and intractable, and occasionally aggressive, assaulting any one who approached him.

"At the same time also he obstinately rejected his food, and destroyed his clothes and bedding. His activity was excessive, and the want of nourishment, and expenditure of vital energy, soon began to tell upon his strength, which was still very great, so that he was fed with incredible difficulty. But the violence of the disease continuing unabated, it became evident he would succumb. He now became rapidly emaciated, as well as lost strength, and even the power of distinct utterance, and at last sank from exhaustion."

Diseases of the Organs of Respiration.—Compared with the preceding year there was a reduction in the ratio of cases coming under this head to the extent of 38·4 per 1,000 of mean force. Two hundred and fifteen cases altogether, of various forms of disease, were under treatment, of which one was invalided, and two proved fatal. One of the fatal cases occurred in the person of a petty officer of the Challenger, whose constitution was broken down by previous disease, and intemperate habits. On the 11th of January he complained of a severe catching pain in the chest, attended with difficulty of breathing, and great prostration of strength. He stated that for some time past his general health had become much impaired, and that he had recently caught a fresh cold, which had affected his breathing very much. He was emaciated, and the skin and conjunctivæ presented a yellowish tinge. The pulse was 90, small; the bowels were confined. He did not improve at all under the treatment to which

which he was subjected, and on the morning of the 14th he complained of the pain in the chest being much worse. The breathing was very hurried and catching, and there was great prostration. He attributed these unfavourable symptoms to a fall from his hammock, the lashing of which had given way. He was immediately placed in a cot in the sick-bay, and a stimulating draught given him. At 9 a.m. of the same morning, when returning from the water-closet, he was seized with giddiness and fainting, followed by a convulsive attack which lasted half an hour. The weather at this time was very hot and oppressive, it being a calm, and the thermometer standing at 86° Fahr. At 10.30 a.m. he was seized with another convulsive attack, from which he never completely rallied, but expired about an hour afterwards. On post-mortem examination of the body the right pleuræ were found to be adherent in several places from recent effusion of lymph, and there were also old and very firm adhesions at the lower and back part of the chest. The upper portion of the lung was filled with frothy mucus, and the lower part completely solidified from recent inflammatory action. On the left side the appearances were much the same as on the right, but the indications of pneumonia were less extreme. The heart appeared healthy; there was some amount of serous exudation in the pericardium. The liver was much congested and greatly enlarged. The spleen was also greatly enlarged with old lymphy patches on its surface. Both kidneys presented indications of recent inflammation, and the small intestines were much contracted in several places. The above abridged history of this suddenly fatal case of pleuro-pneumonia, is taken from the more extended report of the surgeon* of the ship.

The other fatal case under this head was one of phthisis.

Catarrhal affections of a somewhat obstinate character were rather frequent in the vessels stationed at Sydney, in the Christmas quarter. They were associated in many instances with cases of diarrhœa and of mild continued fever, and were attributed to the extreme and sudden variations of temperature which not unfrequently occur in that locality at that season of the year.

Diseases

* Surgeon Alexander Watson, M.D.

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Diseases of the Heart and Bloodvessels.—A fatal case of aneurism of the aorta occurred in the person of a mess servant of the Brisk, who while employed sweeping out the gun-room was heard coughing, and soon afterwards seen falling forwards on the deck. The surgeon of the vessel, says:—

"I was at once sent for, and found him in a state of complete insensibility, and evidently sinking rapidly; pulse almost imperceptible; face blanched; pupils dilated and fixed, and in a few moments he expired. A post-mortem examination of the body revealed a large aneurismal sac at the arch of the aorta, having an opening on its right side into which the finger could be introduced. The coats of the aorta were diseased and thickened, and slight vegetations existed in the aortic valves, but the heart was otherwise pretty healthy. The pleura was found filled with serous fluid, and on the right side there was a large quantity of coagulated blood. The right lung was full of air, the cells appearing like a number of white vesicles covering its surface, from the right bronchus getting closed with fluid. The left lung was heavy and injected with dark blood. On its posterior aspect it was of a dark reddish colour, depending probably on gravitation. The deceased (who had been apparently in his usual health up to the morning alluded to above) was entered in the Brisk in May 1866 (a few weeks before I joined her at New Zealand), and on only one occasion since that time did he apply for treatment, and then he only complained of a slight cough with some dyspnœa, which yielded to treatment while he continued to discharge his duties as a gun-room servant. I discovered, however, on stethoscopic examination that he was labouring under aneurism, but as his duties were of a light nature, I did not bring him forward for invaliding."

Under the head of functional and organic disease of the heart, two cases appear, one of which was invalided. In both instances the affection was palpitation, in one of a temporary character, but in the other (a boy of the Charybdis) so persistent and to such a degree as quite to unfit him for the service. There was no history of rheumatism in connection with this case. The action of the heart was greatly increased, and there was a want of clearness in the first sound, with a weak pulse. Treatment seemed to exert only a very small and temporary effect on his symptoms.

Diseases of the Alimentary Canal.—There was an increase in the ratio of cases coming under this head compared with the preceding year, which was altogetherdue to the greater prevalence of cases of diarrhœa. Altogether 106 cases of this disease were under treatment, the average duration of each case being between four and five days.

In

In the Brisk, in which there were forty-five cases of diarrhœa, more than one half of them occurred during the Christmas quarter, when the vessel was at Sydney. The disease prevailed in an epidemic form, being associated, as has been previously stated, with cases of catarrh and of mild continued fever. The surgeon of the vessel, remarks :— Australian Station.

"Many of the patients with diarrhœa were attacked during the night, when severe pain in the abdomen set in, followed by tormina, vomiting, and purging. Very large doses of opium were required, and the application of sinapisms, before relief was obtained. Congestion of the liver, and of the mucous membrane of the stomach and duodenum was present in most of the cases, and necessitated the free use of Hydrarg. cum cretâ and Pulv. ipecac. co.; after the purging had ceased, infusion of gentian, and bicarbonate of soda were found useful in correcting acidity, and giving tone to the digestive organs. The average duration of each case was four days and a half. Several patients with diarrhœa suffered also from catarrh, and many of those entered on the sick-list for catarrh, afterwards laboured under diarrhœa. In fact a pyrexial state of the system set in, attended often by symptoms of both these diseases, sometimes one, and sometimes the other complication, seeming to predominate. The epidemic resembled the diarrhœa catarrhosa which often prevails in England during autumn, and the cases entered as catarrh partook of the character of influenza, and were on an average seven days under treatment. The weather at Sydney during the last two months has been very hot and changeable, the sky was generally pervaded with a thick haze, and the sun's rays were powerful during the day, while the wind was cool and variable; its prevailing direction was E.N.E. Still the evenings were frequently chilly, and I believe the action of the skin thus became suddenly checked, and pulmonary and intestinal catarrh followed. The water used on board appeared to be very good, and was obtained from the same source as that supplied to the inhabitants on shore; yet it is strange that the officers and crews of Her Majesty's ships Challenger and Charybdis (which were in harbour at the same time as the Brisk) should also have suffered from diarrhœa and catarrh to a greater extent than the people of the town of Sydney, although the latter had a great deal of the same kind of sickness prevailing amongst them also. As the drainage of the city is very defective, it was at first supposed that some leakage of sewage into the water pipes might have existed, and admitted a sufficient quantity of organic matter to produce diarrhœa, but, on examination, no such leakage was discovered. A drought had prevailed at Sydney for several months, and the water was becoming scarce, when on the 27th and 28th of December a heavy thunder-storm took place, followed as usual by a fall of rain. The health of the crew afterwards began to improve rapidly, and no more sickness existed on board at the end of the year than is usual at this season."

In the Challenger there were nineteen cases of diarrhœa, fourteen of which occurred during the Christmas quarter at

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Sydney. But little information, however, is given in connection with them. In several instances the disease was accompanied with vomiting, and left the patients in a debilitated state for some days.

There were eight cases of diarrhœa in the Charybdis, all of which occurred at Sydney during the Christmas quarter of the year. With reference to these cases, the surgeon* of the ship makes the following observations:—

"Again, in the last month of the year, while at Sydney, an epidemic of diarrhœa prevailed on board the Charybdis, as well as in the Challenger and Brisk, lying in the same place. The disease was in the form of bilious diarrhœa, accompanied with fever, and was evidently the consequence of a high atmospheric daily temperature, with frequent and sudden changes towards night. At the same time zymotic diseases were prevalent on shore, especially typhus and dysentery, as is shown by the following extracts from the Report of the Registrar General for December 1867.

"'The number of deaths in Sydney was 187, being 20 per cent. above the average of the corresponding month in the years 1862 to 1866.' . . . . 'The proportion of zymotic diseases to the aggregate mortality was 26·75 per cent. Of this class typhus killed ten, dysentery three, and diarrhœa twenty persons.'

"The other zymotic diseases which prevailed at the same time were, measles, causing two deaths, scarlatina five, diphtheria one, and hooping cough four.

"A peculiar feature of the prevalent diarrhœa has been the suddenness of its attack, very often in the middle of the night. At first several copious discharges from the bowels of a bilious character occur at short intervals; after this tenesmus, often very severe, comes on in frequent spasms, with great straining over the stool, to which the patient is ineffectually called as often as six or eight times in a watch. Now the feverish symptoms begin to predominate; the inclination to go to stool may continue, but little is passed but flatus and a little mucus. The tongue is white and pasty, the pulse accelerated, there are frequent chills, and the skin is hot and dry at first, becoming moist as the violence of the symptoms subsides. In some cases there has been much irritability of the stomach, and besides the usual headache of fever, pains in the head or across the chest have been frequently complained of. This griping and tendency to purge, together with the white tongue and feverishness, have sometimes disappeared in two or three days, but mostly the disease has continued longer, and kept the patient on the list for ten days or a fortnight. The remedies found most useful in the treatment of this complaint have been, in the first instance, diaphoretics of ipecacuan, with nitrate of potass, or Spiritus ætheris nitrosi. With rest in the hammock, and rice diet, this treatment has

* Surgeon J. C. Messer, M.D.

has been sufficient to remove the complaint, in many cases in a few days; but when it has proved more obstinate, mercurial acids, as sulphuric and hydrochloric, have been substituted for the diaphoretics with advantage, acting seemingly both as astringents and febrifuges.

"There is an evident connection between this complaint and typhoid fever, but fortunately none of the cases on board the Charybdis have shown any eruption, or assumed the graver characters of that disease; yet many of the cases coming under treatment were so unmistakably febrile in their character, that I have entered them on the sick-list as cases of febricula rather than of diarrhœa."

There were no points of any interest in the cases of diarrhœa occurring in the other vessels of the squadron.

In Table IV. a fatal case of dysentery appears in connection with the Challenger. This occurred in the person of an officer borne on the books of that vessel, but whose duties were entirely confined to the coast survey of the colony of Victoria, where he resided. The disease appears to have been complicated with an affection of the liver of some standing; but little, however, is known of the history of the case.

Diseases of the Genito-Urinary Organs.—Forty cases of primary syphilis, seventeen of secondary syphilis, and twenty-seven of gonorrhœa were under treatment during the year, and of these each case of primary syphilis was on an average about twenty days under treatment; each case of secondary syphilis between twenty-seven and twenty-eight days; and each case of gonorrhœa about twenty-two days.

There were eight cases of primary syphilis, three of secondary syphilis, and ten of gonorrhœa in the Brisk. One man suffered twice from the constitutional effects of the disease; on the first occasion assuming the form of rupia, and on the second of iritis. All the venereal disease in this vessel was contracted either at Sydney, or at Auckland, at which latter place it is stated a number of the most abandoned prostitutes have collected since the Imperial troops left the colony.

In the Challenger there were eleven cases of syphilis and three of gonorrhœa, but how many of the cases of syphilis were primary and how many secondary, it is not possible to say, as no division of the disease has been made in the returns. The majority of these cases had their origin at Sydney, and the surgeon remarks:—

". . . . When it is considered that the whole ship's company were exposed to the contagious influence of these diseases for twelve

 months,

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months, the actual number of cases is very small. This may be attributed to the superior class of prostitutes in Sydney, compared with those of our seaport towns in England, and to the circumstance that from the mildness of the climate much greater attention is paid to bathing and general cleanliness. Most of the venereal complaints on board this vessel occurred amongst young ordinary seamen, suffering for the first time; and the disease was frequently complicated with orchitis, phymosis, or similar inflammatory complaints requiring prolonged treatment. There never has been any particular supervision of prostitutes in Sydney, nor has any provision been made for their treatment in hospital. I have seldom experienced any difficulty in getting men to present themselves for treatment when they were satisfied they had contracted disease, and secondary affections would appear to be much less common and certainly very much milder in character than observed in many other parts of the world."

During the latter six months of the year, when the Charybdis was on the station, the only venereal disease which appears in her returns is a single case of gonorrhœa. The men would appear to have had ample opportunities of contracting the disease at every port the vessel visited, and the surgeon is inclined to attribute their immunity from its effects, to superior healthiness of the prostitutes in the colonies compared with those in England. He says:—

"I believe that no special police regulations with reference to this matter exist in any of the ports we have visited, the action of the authorities extending only to the suppression of known houses of resort, and to street-walking."

The Esk was only on the station during the first six months of the year, and during that period three cases of primary syphilis, and five of gonorrhœa were entered on the sick-list; little or no information is given respecting them: they appear to have been contracted at Sydney, just before the vessel sailed for England.

There were fourteen cases of primary syphilis, ten of secondary syphilis, and seven of gonorrhœa, in the Falcon. The greater part of this disease was contracted at Sydney, but a good many cases had their origin at Tahiti, which the vessel visited during a cruise among the South Sea Islands. It appears that the salutary system of surveillance of prostitution which had been in operation in that island had been suspended, and that syphilis, both in its primary and secondary forms, was not uncommon. A singular case, said to have been

been syphilitic, is thus referred to by the surgeon* of the vessel:—

"One case of syphilis (primary) occurred, the first for the year; it was not at first recognised as syphilitic owing to the situation of the sore, which was on the left cheek. The patient had sustained an abrasion of the part, which must, before it was healed over, have become infected with the virus while the man was on leave on shore, as no case occurred on board. The sore was cupped, and had an indurated base, and just below the angle of the jaw was an enlarged gland. I carefully examined the genitals, but found no trace of any sore or lesion. The case was treated by mercurial inunction daily, for some time, until the gums were slightly affected; afterwards on every other day until the sore gradually healed over; but as the edges of the cicatrix felt indurated, and the gland remained enlarged, ten grains of the iodide of potassium were given daily for about a week, when, as the sore had healed over some days previously, and the mercurial action on the gums had ceased, he was discharged to duty."

There were four cases of primary syphilis, four of secondary syphilis, and one of gonorrhœa, during the first nine months of the year, when she was on the station. Speaking of an experience of over three years, the surgeon says:—

"Our men have been specially free both from syphilis and gonorrhœa during their stay on the Australian Station; whether owing to the special cleanliness of the prostitutes in that land, where the same amount of want and destitution (which are too often accompanied by a careless personal hygiene) among the lower classes, and especially among fallen women, does not prevail as in the seaports of England, and also many foreign ports, such as Batavia and St. Helena, at both of which places native and half-caste prostitutes abound, and venereal diseases are both very common and very severe; or ascribed to the circumstance that our visits to Sydney considerably excelled those of other ships both in frequency and duration, thus permitting a more careful selection on the part of the men, followed perhaps by greater faithfulness on the part of the women, who might consist of a better class of prostitutes. . . . It is to be hoped that the Contagious Diseases Act which is now doing so much at least to lessen, if it may not ultimately eradicate, venereal disease in our seaports at home, will soon be extended to the colonies, to benefit the seamen not only of our Royal and merchant navies, but sailors of all nations. St. Helena is one of those places which much require it, and nowhere could it more easily be carried out, as both the shore, and the ever-changing floating population are limited and concentrated, and every boat and man that lands or leaves the island, and indeed all that transpires, can be so easily watched. In sub-tropical climates like this, and and

* Surgeon P. W. Rolston.

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far more so in tropical ones, venereal diseases often appear to run their course with tenfold intensity, even when contracted from European prostitutes, and doubly so with affections received from the more filthy and half-starved natives or half-castes."

A death from stricture appears on Table IV.; it occurred in the person of a seamen of the Falcon, who was placed on the sick-list with general febrile symptoms, on the 11th of October. Shortly previous to this, he had been under treatment for gonorrhœa. On the 13th, as he complained of difficulty in micturition, the penis was examined, and on the dorsum, near the pubis, an induration of the sub-cutaneous tissues found, as if from effused lymph; the prepuce was rather enlarged. On attempting to pass a cathether, a stricture was met with about an inch from the meatus through which nothing larger than a probe could be passed. It was then ascertained that for some months he had suffered from difficulty in micturition. On the 19th, there were marked symptoms of retention of urine; there was a decided fulness over the pubis; while lying in bed he had no desire to pass water, but on getting up and straining a little, about eleven ounces of urine came away with much following relief. He was placed in a cot and an opiate given him, after which he dozed until the evening, when he awoke feeling a sense of relief which he had not had for several days. On examining the bed it was found saturated with urine, which had been voided during sleep; the pubic distension was gone. He had hip-baths during the evening, and while in them voided urine freely. On the 20th he had two rigors, but passed water tolerably freely. On the 21st, at 3 a.m. he passed a little urine with [illegible] followed by a little uneasiness in the penis, which, straining, [illegible] found to be swollen, as also was when he was visited, was found to [illegible] now the anterior part of the scrotum. The ship having arrived at Sydney, he was conveyed to the Military Hospital, where the swollen prepuce was slit up and punctured, giving exit to the effused fluids, and affording much relief. A No. 3 gum-elastic catheter was passed for about three inches down the urethra, and through it about nine ounces of urine came away. It would appear, however, that subsequently, although the urine continued to pass through the instrument, the swelling of the penis returned, and extended to the scrotum and perinæum. After consultation, perinæal section was performed, and incisions made into the penis and scrotum. The weather at this time was sultry from the hot winds that had prevailed for some days; the temperature was between 85° and 90°. Two hours after the operation

ration a copious discharge of blood, followed by a flow of water occurred through the perinæal wound, when he became very faint; although he rallied from this condition, symptoms of sinking set in, and he expired on the following day. The ship in the meanwhile had left Sydney, and there is no information as to whether a post-mortem examination of the body was made or not.

Wounds and Injuries.—One man died from fracture of the skull and other extensive injuries sustained by falling from aloft; and a man who fell from the upper to the main deck across an iron tank, died from inflammation of the lungs, excited by fractured ribs.

Three men were drowned: one by falling overboard; one is supposed to have walked over the quay at Sydney by accident; and the third is supposed to have fallen overboard from a boat in which he was attempting to pull himself off to the ship when intoxicated.

The total number of deaths was fourteen, of which nine were from various forms of disease, and five from wounds and injuries, and drowning. The total death-rate was 14·7 per 1,000 of mean force, which is ·3 below the corresponding ratio of the preceding year.

Invalided.—Four persons were invalided for diseases of the brain and nervous system; one for disease of the lungs; one for disease of the heart; two for diseases of the alimentary canal; four for rheumatism; one for diseases of the bones and joints; one for deafness; and one for dyspepsia. The total number invalided was fifteen, which is in the ratio of 15·7 per 1,000 of mean force, being a decrease, compared with the preceding year, equal to 8·7 per 1,000.

TABLE, No. 1.

SHOWING the Number of CASES of all DISEASES and INJURIES, and the Number INVALIDED and DEAD, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Continued and Remittent Fever	34	35·7	-	-	3	3·1
Intermittent Fever	1	1·	—	—	—	—
Measles	2	2·1	—	—	—	—
Disease of the Brain	1	1·	1	1·	1	1·
Epilepsy	4	4·2	1	1·	—	—
Paralysis	2	2·1	2	2·1	—	—
Insanity	2	2·1	—	—	—	—
Neuralgia	6	6·3	—	—	—	—
Inflammation of the Lungs and Pleura	12	12·6	1	1·	1	1·
Phthisis and Hæmoptysis	5	5·2	-	-	1	1·
Influenza and Catarrh	158	166·3	—	—	—	—
Cynanche	38	40·	—	—	—	—
Asthma	2	2·1	—	—	—	—
Disease of the Heart, Functional and Organic	2	2·1	1	1·	—	—
Hæmorrhoids	9	9·4	—	—	—	—
Aneurism	1	1·	-	-	1	1·
Disease of the Stomach and Bowels	1	1·	1	1·	—	—
Dysentery	1	1·	-	-	1	1·
Diarrhœa	106	111·5	1	1·	—	—
Constipation and Colic	18	18·9	—	—	—	—
Disease of the Liver	2	2·1	—	—	—	—
Splenitis	2	2·1	—	—	—	—

TABLE, No. 1.—Showing the Number of Cases of all Diseases, &c.—*continued.*

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	5	5·2	—	—	—	—
Syphilis, Primary	40	42·1	—	—	—	—
Syphilis, Secondary	17	17·8	—	—	—	—
Gonorrhœa	27	28·4	—	—	—	—
Orchitis	36	37·8	—	—	—	—
Stricture	10	10·5	—	—	1	1·
Rheumatism	75	78·9	4	4·2	—	—
Gout	6	6·3	—	—	—	—
Disease of the Bones and Joints	14	14·7	1	1·	—	—
Inflammation of the Eyes	18	18·9	—	—	—	—
Otitis and Deafness	3	3·1	1	1·	—	—
Bubo (*Symp.*)	21	22·1	—	—	—	—
Phlegmon and Abscess	267	281·	—	—	—	—
Ulcer	81	85·2	—	—	—	—
Psora	1	1·	—	—	—	—
Eruptions, &c.	22	23·1	—	—	—	—
Dyspepsia and Debility	54	56·8	1	1·	—	—
Headache	16	16·8	—	—	—	—
Wounds and Injuries	387	407·3	—	—	2	2·1
Burns and Scalds	12	12·6	—	—	—	—
Hernia	2	2·1	—	—	—	—
Drowned	—	—	—	—	3	3·1
TOTAL	1,523	1603·1	15	15·7	14	14·7

TABLE, No. 2.

SHOWING the Number of DAYS' SICKNESS from each DISEASE and from INJURIES, the Average Number of Men Sick Daily, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Continued and Remittent Fever	362	33	395	1·	1·
Intermittent Fever	4	-	4	—	—
Measles	12	-	12	—	—
Disease of the Brain	1	-	1	—	—
Epilepsy	51	35	86	·2	·2
Paralysis	27	-	27	—	—
Insanity	22	61	83	·2	·2
Delirium Tremens	2	-	2	—	—
Neuralgia	26	-	26	—	—
Inflammation of the Lungs and Pleura	340	117	457	1·2	1·2
Phthisis and Hæmoptysis	180	49	229	·6	·6
Influenza and Catarrh	977	-	977	2·6	2·7
Cynanche	212	-	212	·5	·5
Asthma	17	-	17	—	—
Disease of the Heart, Functional and Organic	159	-	159.	·4	·4
Hæmorrhoids	58	-	58	·1	·1
Aneurism	1	-	1	—	—
Disease of the Stomach and Bowels	7	-	7	—	—
Dysentery	9	-	9	—	—
Diarrhœa	490	-	490	1·3	1·3
Constipation and Colic	78	-	78	·2	·2
Disease of the Liver	17	-	17	—	—
Splenitis	25	-	25	—	—

TABLE, No. 2.—Showing the Number of Days' Sickness from each Disease, &c.—*cont^d.*

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	60	74	134	·3	·3
Syphilis, Primary	740	47	787	2·1	2·2
Syphilis, Secondary	468	-	468	1·2	1·2
Gonorrhœa	608	1	609	1·6	1·6
Orchitis	596	-	596	1·6	1·6
Stricture	171	9	180	·4	·4
Rheumatism	864	461	1,325	3·6	3·7
Gout	37	-	37	·1	·1
Disease of the Bones and Joints	208	122	330	·8	·8
Inflammation of the Eyes	407	-	407	1·1	1·1
Otitis and Deafness	52	-	52	·1	·1
Bubo (*Symp.*)	495	-	495	1·3	1·3
Phlegmon and Abscess	2,115	-	2,115	5·7	6·
Ulcer	1,580	64	1,644	4·5	4·7
Eruptions, &c.	256	-	256	·7	·7
Dyspepsia and Debility	449	-	449	1·2	1·2
Headache	207	24	231	·6	·6
Wounds and Injuries	3,996	39	4,035	11·	11·5
Burns and Scalds	145	-	145	·3	·3
Hernia	12	-	12	—	—
TOTAL	16,543	1,136	17,679	48·4	50·9

TABLE, No. 3.

SHOWING the Number INVALIDED from each Ship employed on the AUSTRALIAN STATION.

CAUSE OF INVALIDING.	Brisk.	Challenger.	Charybdis.	Marines.	TOTAL.
Inflammation of the Brain	–	1	–	–	1
Epilepsy	–	1	–	–	1
Paralysis	–	1	1	–	2
Inflammation of the Lungs and Pleura	1	–	–	–	1
Disease of the Heart	–	–	1	–	1
Inflammation of the Stomach and Bowels	–	–	1	–	1
Diarrhœa	–	1	–	–	1
Rheumatism	2	1	–	1	4
Diseases of the Bones and Joints	–	1	–	–	1
Otitis and Deafness	–	1	–	–	1
Dyspepsia and Debility	1	–	–	–	1
TOTAL	4	7	3	1	15

TABLE, No. 4.

SHOWING the Number of DEATHS in each Ship employed on the AUSTRALIAN STATION.

CAUSE OF DEATH.	Brisk.	Challenger.	Esk.	Falcon.	Salamander.	TOTAL.
Continued and Remittent Fever	–	2	1	–	–	3
Inflammation of the Brain	–	1	–	–	–	1
Inflammation of the Lungs and Pleura	–	1	–	–	–	1
Phthisis	–	–	1	–	–	1
Aneurism	1	–	–	–	–	1
Dysentery	–	1	–	–	–	1
Stricture	–	–	–	1	–	1
Wounds and Injuries	1	1	–	–	–	2
Drowned	–	1	1	–	1	3
TOTAL	2	7	3	1	1	14

Table, No. 5.

Showing the Names of the Ships; the Average Complements, &c.; the Number of Cases; the Total Number of Days' Sickness on Board; the Average Number of Men Sick Daily, in each Ship; and the Number discharged to Hospital.

Rate, &c.	NAMES of SHIPS.	Where Commissioned.	When Commissioned.	Number of Guns.	Tonnage.	Horse Power.	Period.	Average Complements.	Average Complements corrected for Time.	Number of Cases of Disease and Injury.	Number of Days' Sickness on Board.	Average Number of Men Sick Daily for Twelve Months.	Ratio per 1,000 of Average Force of each Ship.	Number Discharged to Hospital.
Sixth Rate -	Brisk - - -	Devonport -	30 Aug. 1864	16	1,087	S. 250	Year - -	190	190	314	3,286	9·	47·3	4
	Challenger - -	Sheerness -	12 April 1866	18	1,462	S. 400	Year - -	290	290	359	4,335	11·8	40·6	9
	Charybdis - -	Sheerness -	7 Jan. 1867	18	1,506	S. 400	1 July to 31 Dec.	265	130	174	2,686	7·3	56·1	1
	Esk - - -	Portsmouth	20 May 1863	21	1,169	S. 250	1 Jan. to 30 June	210	105	157	1,354	3·7	35·2	2
Sloop - -	Falcon - - -	Portsmouth	22 Oct. 1863	17	751	S. 100	Year - -	155	155	355	2,930	8·	51·6	4
	Salamander - -	Sheerness -	10 Dec. 1863	6	818	P. 220	1 Jan. to 30 Sept.	95	70	156	1,913	5·2	74·2	—
Marine Detachment, Somerset - -		- -	2 Aug. 1864	-	-	-	1 Jan. to 30 Sept.	13	10	8	43	·1	10·	—

Table, No. 6.

Showing the Number of Cases of all Diseases and Injuries in each Ship on the Australian Station.

DISEASE OR INJURY.	Brisk.	Challenger.	Charybdis.	Esk.	Falcon.	Marines, Somerset.	Salamander.	Total.
Continued and Remittent Fever	9	3	11	2	2	–	7	34
Intermittent Fever	–	–	–	1	–	–	–	1
Measles	–	–	–	2	–	–	–	2
Disease of the Brain	–	–	–	–	–	–	1*c*	1
Epilepsy	–	3	1	–	–	–	–	4
Paralysis	–	1	1	–	–	–	–	2
Insanity	–	2	–	–	–	–	–	2
Neuralgia	–	–	–	–	6	–	–	6
Inflammation of the Lungs and Pleura	7	2	2	–	1	–	–	12
Phthisis and Hæmoptysis	2	–	–	2	–	–	1	5
Influenza and Catarrh	41	40	28	14	22	2	11	158
Cynanche	5	13	2	5	8	–	5	38
Asthma	–	–	–	2	–	–	–	2
Disease of the Heart, Functional and Organic	–	–	1	1	–	–	–	2
Aneurism	1*a*	–	–	–	–	–	–	1
Hæmorrhoids	–	5	–	–	2	–	2	9
Inflammation of the Stomach and Bowels	–	–	1*b*	–	–	–	–	1
Dysentery	–	–	–	–	–	–	1	1
Diarrhœa	45	19	8	9	17	1	7	106
Constipation and Colic	2	5	–	1	7	1	2	18
Inflammation of the Liver	–	–	–	–	–	–	2	2
Splenitis	–	–	–	–	–	–	2	2
Inflammation of the Bladder and Kidneys	1	–	–	–	–	–	4	5
Syphilis, Primary	8	11	–	3	14	–	4	40
Syphilis, Secondary	3	–	–	–	10	–	4	17
Gonorrhœa	10	3	1	5	7	–	1	27
Orchitis	4	16	–	4	10	–	2	36
Stricture of the Urethra	3	1	1	2	3	–	–	10
Rheumatism	15	17	7	11	15	2	8	75
Gout	2	–	–	–	4	–	–	6
Disease of the Bones and Joints	1	4	2	1	5	–	1	14
Inflammation of the Eyes	4	9	1	–	1	–	3	18
Otitis and Deafness	–	1	2	–	–	–	–	3
Bubo (*Symp.*)	6	13	–	–	–	–	2	21
Phlegmon and Abscess	51	46	30	46	69	1	24	267
Ulcer	23	23	13	10	11	–	1	81
Psora	–	–	–	–	1	–	–	1
Eruptions, &c.	6	8	4	–	4	–	–	22
Dyspepsia and Debility	11	22	–	9	6	–	6	54
Headache	1	9	–	–	–	–	6	16
Wounds and Injuries	51	79	56	26	126	1	48	387
Burns and Scalds	2	3	1	1	4	–	1	12
Hernia	–	1	1	–	–	–	–	2
Total	314	359	174	157	355	8	156	1,523

a Of aorta. *b* Hæmatemesis. *c* Hysteria.

IRREGULAR FORCE.

Irregular Force.

THERE were sixty-five vessels in the Irregular Force in the year 1867, viz.: four iron-clads; three vessels of the second rate; four of the fourth rate; two of the fifth rate; and eight of the sixth rate; seventeen sloops; eleven gun-vessels; two steam-vessels; nine troop-ships; four store-ships; and one vessel lent to the Colonial Government, Melbourne, and on her passage out to her destination. Only eight of the vessels sent in returns for the whole twelve months; the remainder were for periods varying from a few weeks to ten months. The mean force corrected for time was 6,600, and the total number of cases entered on the sick-list 10,680, which is in the ratio of 1618·1 per 1,000 of mean force, being an increase, compared with the preceding year, equal to 30·2 per 1,000.

The average daily loss of service from febrile diseases, including the exanthemata, was in the ratio of 2·8 per 1,000 of mean force; from diseases of the brain and nervous system, ·7; of the organs of respiration, 7·1; of the heart and bloodvessels, ·6; of the alimentary canal, 1·8; of the liver, ·3; of the genito-urinary organs, 13·8; from rheumatism, 4·2; gout, ·1; diseases of the bones and joints, ·4; diseases of the special senses, ·8; of the skin and cellular tissue, 14·5; from diseases not classed, 2·3; and from wounds and injuries of various kinds, and hernia, 10·2. The average number of men sick daily was 416·2, which is in the ratio of 63 per 1,000 of mean force, being a slight reduction compared with the previous year.

Fevers.—There were 363 cases of fever of a continued and remittent type, forty-seven of ague, fifteeen of small-pox, sixteen of measles, and three of scarlatina, under treatment during the year, and of these, four of primary fever were invalided; and thirteen of primary fever, and one of small-pox proved fatal. Each case of primary fever was, on an

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average, between fifteen and sixteen days on the sick-list; each case of ague, thirteen days; each case of small-pox, about twenty days; each case of measles, thirty-eight days; and each case of scarlatina, forty-five days.

Continued and Remittent Fevers.—There was no great prevalence of febrile diseases in any of the vessels of the Irregular Force. Those in which fatal cases occurred were the Bristol, Galatea, Ocean, Rodney, Salamander, Simoom, Sylvia, and Tamar.

The fatal case in the Bristol occurred on the passage of that vessel from Madeira to Sierra Leone, in the person of a young officer, who had been on shore at Madeira and a good deal exposed to the sun, besides staying for a short time at an hotel there, the inmates of which, however, were said to be healthy. The fever was of the specific enteric type, the eruption, abdominal symptoms, and stools being quite characteristic. In the same quarter of the year in which this case occurred, seventeen cases altogether of primary fever were under treatment in the Bristol, of which three are classed as continued, thirteen as febricula, and one the case of enteric fever just referred to.

The cases of primary fever in the Cameleon, Chanticleer, Crocodile, and Daphne, were for the most part ephemeral, and of no importance.

There were twenty cases of primary fever in the Dryad; fifteen of these are classed as febricula, and five as gastric, but as the majority of the so-called gastric cases were only about three days under treatment, it is probable that a less formidable classification would have sufficed for them. They were so designated, however, on account of the more prominent and distressing symptoms manifesting themselves in the stomach and bowels. They appear to have been of an obscurely remittent type, and were considered to have been for the most part dependent on insolation.

The cases of primary fever in the Eclipse and Espoir do not call for any comment.

There were twenty-five cases of primary fever in the Galatea, three of which are classed as continued, twenty as remittent, and two as febricula. Of these, the three of the continued

continued type proved fatal. With reference to these the surgeon* of the ship says:—

"Three cases of continued fever are shown; the first was in a boy. There was at no period any eruption on the body, nor any enteric symptoms, and up to the tenth day of the disease he seemed to progress favourably; then head symptoms commenced, first showing themselves by a great tendency to somnolency, and a great difficulty in making him understand or answer questions put to him, succeeded by low muttering delirium, which lasted until his death on the fourteenth day of the disease. . . . . The next case was that of a midshipman, aged 17, of a very delicate constitution, who only joined the ship at Malta, and was always ailing, although never actually ill. . . . He was put on the sick-list on the 6th of July, at sea, complaining of the usual febrile symptoms, which did not alter much in character until the evening of the 8th, when he had a severe attack of epistaxis, which was restrained with difficulty, and recurred repeatedly. On the 11th he complained of pain, extending from the epigastric to the umbilical region, a gurgling sensation was felt on pressure in the right iliac region, diarrhœa set in, and a rose-coloured eruption made its appearance on the skin. On the night of the 14th he became somewhat delirious, and gradually weaker, and on the arrival of the vessel at Rio de Janeiro he was discharged to the Egmont for greater quietude, where he died next morning. The third case was that of a Marine, who was placed on the sick-list at the Cape of Good Hope, where fevers of a typhus and typhoid character were very prevalent on shore, and where, a fortnight previous to his being attacked, he had broken his leave, and been brought on board in a state of intoxication. He also had epistaxis, and the eruption was very distinct all over the body. He died comatose on the twentieth day."

The majority of the cases of remittent fever in this vessel occurred when she was at Marseilles. They appear to have been of a very tedious character, the average duration of each case on board ship being upwards of six weeks, and three of them were sent to hospital.

The cases of primary fever in the Hesper, Himalaya, Hydra, and Industry, do not call for any remarks. In the Hesper and Hydra they were ephemeral in character, but in the Himalaya and Industry they were of the remittent type, and were discharged to hospital.

There were eleven cases of primary fever in the Jumna, all of which occurred in the Michaelmas quarter of the year, when the vessel was lying in Diamond Harbour in the River Hooghley, where the heat was very oppressive. All the cases are

* Surgeon James Young, M.D.

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are classed as continued, and they were considered to be attributable to high temperature and the large amount of work thrown upon the men, especially in the engineers' department. The average duration of each case was between eight and nine days.

There were twenty cases of primary fever in the Lee, all of an ephemeral type, the average duration of each case being about four days.

In the Lord Warden there were five cases of primary fever, classed as continued. Three of these occurred when the vessel was in the Tagus. They are thus briefly referred to by the staff surgeon* of the ship:—

"Three cases of fever of a low continued type occurred on board while the ship was at Lisbon. The chief symptoms were slight feverishness and headache for a few days, leaving the patient in a debilitated state. One, an ordinary seaman, was sent to the hospital at Lisbon, and subsequently died of phthisis there. The other two were Marines, and were affected in much the same manner. The primary symptoms having subsided, there followed a diffused dull pain in the chest, accompanied by dyspnœa. These two men were sent to the hospital at Lisbon, where they remained thirty-two days, and were then discharged to the Lord Warden, as she was to proceed to the Mediterranean. On arriving at Malta they were again sent to hospital there."

The cases of primary fever in the Malabar, Megæra, Myrmidon, Nelson, and Nymphe were mostly of an ephemeral character.

When the Ocean was employed on the Mediterranean Station, in the early part of the year, febrile diseases of considerable severity were common on board. They have been referred to in the report on that station.† During the Michaelmas quarter, when the vessel was on the passage to China, these diseases continued. The surgeon‡ says:—

"In the month of July, whilst the ship was on her passage to Rio de Janeiro, calling in and staying a day or two at Madeira and St. Vincent, twelve cases were placed on the sick-list. The fever was of a mild type, the stages of invasion and excitement not being attended with severe symptoms; but perfect convalescence was retarded in one case by severe sciatica in the right lower extremity, accompanied with gastro-intestinal irritability; in another, by hepatic congestion and enlargement, which produced a passive draining of venous blood (epistaxis) from both nostrils, requiring plugging of

* Staff Surgeon Henry Trevan, M.D. † *Ante*, p. 60.
‡ Surgeon John Rorie.

of the posterior nares; in two more, by extreme and almost unconquerable debility, attended with œdema of, and purpura simplex in, both legs, requiring large doses of iron and quinine, and an abundant administration of vinous and fermented liquors; in another, by cachectic symptoms, with congestive pneumonia; in three cases, by relapses and metastatic rheumatism as a complication; and in another, by so much gastric irritability that ulcer of the stomach was diagnosed. In August, after a longer delay at Rio de Janeiro than is customary, in order to recruit thoroughly the health of the ship's company, eight more cases occurred, in which still the type was mild; yet convalescence was protracted by various complications, such as leucocythemia; leucocythemia, with slight epistaxis from the posterior nares and upper part of the pharynx; two relapses, one of them being followed by rheumatism and wasting of the deltoid muscle of the right shoulder, and partial paralysis of the arm; and in the other by rheumatism of the left hip and fascia lata. Then, as the vessel was making way to the latitude of 39° south, along which parallel she was ordered to run, the disease disappeared, no more admissions occurring after the 17th of August."

In Table IV. two fatal cases appear in connection with this vessel. One of them had no relation to the cases occurring during the Michaelmas quarter, but was the termination of a case which had been entered on the sick-list previously, when the vessel was in the Mediterranean. The other occurred in the person of an officer, who was sent to the Naval Hospital at Hong Kong, where he died.

There were eleven cases of primary fever in the Orontes, chiefly of an ephemeral type; and the single case of primary fever that occurred in the Pandora was of the same character.

In the Phœbe there were eighteen cases of primary fever, of which thirteen are classed as continued and five as febricula. The average duration of each case of the former type of disease was between eight and nine days, and of the latter between five and six. During the month of July, when the vessel was on her passage to, and had arrived at, Queenstown, cases of continued fever were frequent. Those which had occurred in the previous part of the year had been complicated with internal congestions, to a greater or less degree: in these cases the tendency to such complication was not so common; in fact, only in one instance did it occur, that being a case of hepatic congestion, with accompanying jaundice. Most of the cases, however, were followed by protracted debility.

The cases of primary fever in the Plover and Princess Royal were of no importance.

There

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There were eight cases of primary fever in the Racoon, some of them of considerable severity. Of seven which occurred during the Midsummer quarter, one which was of a low continued form was thirty-four days under treatment, and two very acute cases, with marked cerebral symptoms, were sent to hospital.

There were fourteen cases of primary fever in the Rodney, three of which proved fatal. Eight are classed as continued and six as febricula. The average duration of each case of the former type on board ship was between eighteen and nineteen days, and of the latter between two and three days. With reference to six cases of continued fever, which occurred in the Michaelmas quarter of the year, the staff-surgeon* says:—

"The first of these cases occurred on the 10th of August, three weeks after leaving the Cape of Good Hope. The specific character of typhoid or enteric fever was speedily recognised, and all the ordinary points of treatment having reference to special symptoms, and all the ordinary precautionary measures to prevent the spread of the disease put in force. Two cases proved fatal on board, and one sent on shore to the hospital at Singapore has since been reported dead. The pythogenic origin, the *cause* of this fever, is no doubt to be looked for in the general condition of the ship. Over-loaded and over-crowded with stores and men, she had been, especially since the heavy gale on the 19th of July, saturated between decks with salt water; the prevailing weather cold and damp, few opportunities offering for properly drying clothes, or airing bedding, numerous cases of catarrhal and other like affections, with a generally depressed condition of vital power, prevailed at the same time."

The fact, however, that enteric fever was prevailing epidemically at the Cape of Good Hope while the ship was there, should not be lost sight of in connection with these cases. It is more than probable that some leave was granted to the ship's company there, in which case there would be a greater probability of the disease having been contracted on shore than having a spontaneous origin on board the ship.

There was a single case of primary fever in the Royal Alfred. It was, however, of the enteric type, and occurred in the person of a bandsman, who was brought to the sick-bay in a very weak and stupified state, after six days' dissipation

* Staff Surgeon Charles Forbes, M.D.

sipation in the low haunts of Portsea. With the exception of the eruption and abdominal tenderness, he presented all the characteristics of the disease prior to his being sent to hospital. He ultimately recovered.

There were two cases of primary fever in the Salamander, one of which proved fatal. The surgeon* of the ship makes the following report on the fatal case, and on the appearance of the disease on board :—

" . . . . On the 28th of October, nine days from Simons Bay, he was seized with the usual pyrexial and other symptoms of continued fever. Delirium manifested itself on the 2nd of November, and on the 4th a copious eruption of maculæ appeared over the trunk and extremities. Wines and soups '*ad libitum*' were given. The case was severe from the first; and the early appearance of head symptoms—muttering, busy delirium, subsultus, weakness of the pulse, indifference of the scalp to blistering fluid, and involuntary micturition and defecation, all indicated an unfavourable prognosis; and the disease finally proved fatal on the eighth day.

" It is necessary to mention that on the 4th of November, the day the ship left St. Helena, *i. e.* six days after the above man's seizure and two days before his death, another man, of small form and weakly habit, who had been for some time on the sick-list, and confined to his hammock with ulcer of thigh, was attacked with typhus, in a milder form and of a different type; viz., with enteric complication (Dothenenterite). This case was sent to hospital at Ascension, where we were put in quarantine, the assistant surgeon and a nurse being also left behind in charge. . . . . As fever, said to have been imported from the Mauritius, where it lately prevailed in a very fatal form, was present in a milder type at the Cape of Good Hope, it becomes a question both of interest and importance to ascertain whether these two cases originated on board, or were imported from Simons Town. It will be sufficient here to state the following reasons for believing that the disease was not derived from the shore :—

" 1st. The periods of incubation—ten and sixteen days—were rather too lengthy.

" 2nd. Though the man who died slept on shore at Simons Town, he was only one hour in-doors, where there is no evidence of his exposure to contagion. The other man was not on shore.

" 3rd. The two men had no intercourse; slept far apart, and therefore must have derived their disease from some cause generally diffused through the ship.

" 4th. There is sufficient evidence that in both the disease originated from the same source, viz., from prolonged exposure to the impure atmosphere of the badly ventilated store-room below the lower

* Surgeon Alexander Rattray, M.D.

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lower deck, from which the former derived its air second hand, and therefore tainted. The man who died had lately worked much as a ship's painter in the store-room; while, in the case of the man who recovered, he only slept over the small hatchway leading to it, and hence why he contracted the disease in a milder form.

"5th. The Simons Bay fever, according to the staff surgeon of the Naval Hospital who had several cases in hospital, was mild in form, and seldom fatal. According to another medical officer who saw much of the disease at Cape Town, it was a low remittent which sometimes became typhoid. Now both these cases were decidedly continued and maculated (*i. e.* typhus) from the first.

"6th. None of the nine invalids received from the Seringapatam, or the four from hospital, where they were more likely to be exposed to contagion than our own ship's company, took fever, though several of them subsequently nursed these cases.

"Believing them to be cases of ship fever, originating in local and remediable causes, measures were at once taken to prevent the spread of the disease. In addition to segregation of the sick, the bilges, holds, tanks, chain-lockers, store-rooms, and the ship throughout, were cleaned, whitewashed, and ventilated, and both the ship and crew well fumigated by means of burning sulphur; while chloride of zinc, Condy's Fluid, and Macdougall's Powder were plentifully supplied to the bilges, and especially to the store-room."

Whatever may have been the true nature of the fever in these cases, the period of incubation in the first and fatal case was not too long either for typhus or for enteric fever. Murchison* says of typhus fever:—

"According to my experience the latest period is usually about nine days, but it may vary from a few hours to twelve days. In Jacquot's cases, the latest period was calculated from the date of embarcation of healthy troops on board infected vessels, and was found to be nine to eleven days."

And again, with reference to enteric fever, he says:†

"In consequence of the insidious manner in which the disease often commences, it is more difficult than in the case of typhus, to determine the length of this (the latent) period; but as a rule it appears to be between one and two weeks. Dr. W. Budd states that a large number of facts have led him to the conclusion that it ranges fom ten to fourteen days. When the school of La Flèche was broken up on account of an outbreak of pythogenic (enteric) fever, of the twenty-nine boys who fell ill with the fever at their own homes, all were seized some time during the second week after their arrival."

Coming,

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* A Treatise on the Continued Fevers of Great Britain. By Charles Murchison, M.D., &c., p. 89.

† Op. cit. p. 435.

Coming, as the vessel did, from an infected locality, where the man who died had slept on shore, it is more probable that the fever poison was introduced on board from that source, than that it had a spontaneous origin in the ship. Its communication to the sickly man who lay in close proximity to the place where the person first infected was in the habit of working, is not difficult to comprehend.

The cases of primary fever in the Scylla, Serapis, and Shearwater were of a more or less trifling character.

There were seven cases of primary fever in the Simoom, one of which proved fatal. They are all classed as remittent, and the average duration of each case was about ten days. The fatal case is termed, by the Deputy Inspector General* of Jamaica Hospital, typhus fever, who says:—

"The patient was received from Her Majesty's ship Simoom on the evening of the 5th of February, and died on the 7th. He had recently been on the sick-list with remittent fever, and after having returned to his duty for eight or ten days, he was again put on the list on the 2nd instant with fever accompanied by great prostration, and an early tendency to delirium."

The cases of primary fever in the Speedwell, Spiteful, and Supply were, as a rule, of an ephemeral character, and do not call for any remarks.

There were seven cases of primary fever in the Sylvia, one of which is classed as continued, two as remittent, and four as febricula; the case of continued fever proved fatal. It occurred in the person of a Marine who, although said to be very quiet and well behaved on board, was accustomed to drink deeply when on leave, and had led a dissipated life. The disease appears to have been contracted at Hong Kong, where he had been for three days on leave, during which he had had a heavy debauch, and spent the greater part of the time in one of the lowest and most unhealthy parts of the town. He presented himself on the 18th of June, complaining of thirst, general pains, headache, and other febrile symptoms. His skin was hot, and he looked dull and stupid. The conjunctivæ were injected; the pulse accelerated; the bowels confined. On the 21st there was a good deal of stupor, and some mulberry eruption appeared on the abdomen. On the following day the eruption was more evident. On the 24th the eruption extended to the chest, and on the evening of that day

* Deputy Inspector General Wm. Duirs, M.D.

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day he was seized with a violent convulsive fit, and in about an hour afterwards expired. In this case the surgeon* says, the period of incubation must have been very short, and the dose of fever poison very severe. During the time of his illness the ship was at sea, and the weather very hot. He was placed in a cot, in as cool a position as could be found, and carefully watched day and night, but he was a prematurely old man, and had not vital power to bear up against the disease.

There were twenty-two cases of primary fever in the Tamar, one of which proved fatal. Thirteen of the cases are classed as ephemeral, eight as remittent, and one as continued. The average duration of each case of ephemeral fever was about four days; of each case of remittent fever on board ship fourteen days; and the case of continued fever was only two days on the sick-list when it was sent to hospital. The fatal case, which is returned as remittent, occurred at Port Royal, Jamaica, in the person of the ship's barber. In consequence of yellow fever being prevalent in Jamaica, no leave was granted to the ship's company of the Tamar during the nine days' stay of the vessel there; but it is said that while the vessel was lying alongside the coal-wharf at Port Royal, this man contrived to get drunk almost every night, on liquor smuggled on board. Some of the symptoms in his case were rather suspicious, but there is little doubt that the disease was remittent fever, rendered virulent by the dissipated habits of the man. In order, however, to avoid as much as possible all risk, the clothes and bedding which he was using were thrown overboard immediately after his death, and the sick-berth in which he died was sprinkled with chloride of zinc, and kept clear of sick until the ship arrived in cool weather, on her way to Queenstown and Portsmouth.

There were three cases of primary fever in the Terrible, one of which is classed as continued and two as remittent. The latter type of fever presented itself in rather a severe form. The staff surgeon† of the ship says: —

"Two other junior officers were at the same time attacked with severe remittent fever, rapidly assuming a typhoid type. This had evidently been induced in both by a visit to the Holy Land, where they had undergone a considerable amount of fatigue, and had been imprudent in remaining too long in the River Jordan when bathing. Moreover, one of these officers had been formerly invalided from the Mediterranean

* Surgeon John Murphy.
† Staff Surgeon Wm. Fasken, M.D.

Mediterranean for the consequences of a severe attack of Syrian fever. In both cases prostration of strength was very marked from the first, and it was deemed advisable, from the serious nature of the fever, to send both to the English Hospital that they might have the benefit of more air and quiet than could be obtained on board. After a doubtful struggle, both cases presented a more favourable prognosis before the quarter terminated."

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In the Urgent there were thirty cases of primary fever. The majority of these occurred in the person of supernumeraries taking a passage to England. They were all of an ephemeral type, and call for no remarks.

There were twenty-six cases of primary fever in the Vestal. They are all classed as continued, and the average duration of each case on board ship was eight days. They occurred during the Midsummer quarter of the year, when the vessel was on her passage to the West Coast of Africa, and they were attributed to the sudden transition from the temperate to the torrid zone. The fever was mild and subacute. The surgeon* says:—

"The principal symptoms of this by no means formidable outbreak were, impairment of the digestive organs, foul tongue, increased heat of skin, total want of appetite, determination in some cases of blood to the head, with severe headache, rapid pulse, and incapacity for exertion. Mild aperients and diaphoretics generally effected a cure in a week."

The cases of primary fever in the Virago and Zebra, do not call for any comments.

Small-pox.—A single case of small-pox occurred in the Barrosa. No information is given in connection with it, excepting that it presented itself, in the person of a stoker, on the 4th of January, six days before the vessel arrived at Spithead from the Cape of Good Hope. It appears, however, that three cases of this exanthem occurred in the Barrosa in the month of December 1866, and that the disease was introduced into the ship at the Cape, where the ship's company had leave. It was by communication with these cases, doubtless, that this man contracted his seizure. No information is given as to whether he had been previously vaccinated or otherwise.

There were four cases of modified small-pox in the Cameleon. The disease was contracted at Sheerness, where it was prevailing

* Surgeon G. W. J. Sutherland, M.A.

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prevailing epidemically. Three of the men attacked had been previously vaccinated, but no information on this point is given with respect to the fourth.

In the Charybdis there was a single case of small-pox. It occurred in the person of a seaman who showed a fair vaccination mark, and is supposed to have been due to infection at Sheerness.

There were six cases of small-pox in the Rodney, one of which, in the person of a negro, proved fatal. No informa- is given as to whether the men attacked had been vaccinated or not. The disease was contracted at Sheerness.

There were single cases of small-pox in the Tamar, Terrible, and Vestal. In the Tamar the disease occurred in the person of a seaman who, while on leave, visited a brother who was ill with the disease in London. He had been vaccinated. In the Terrible the disease appeared in the person of a seaman at Gibraltar. It had probably been contracted at some of the Home seaports. The attack was a modified one, the man showing good vaccination marks. In the Vestal, small-pox presented itself in the person of a Krooman, who probably contracted the disease at Sierra Leone, where it was reported to be prevailing. It occurred when the vessel was at Ascention, at the close of the Midsummer quarter of the year, and the man was at once removed to the shore. The case, however, was the forerunner of the extensive small-pox epidemic which broke out in the ship in the subsequent quarter, and which is recorded at length in a former part of this Report.*

Measles.—A single case of measles appeared in the Bristol at Madeira, eight days after the vessel leaving England. It occurred in the person of a bandsman, and the surgeon† says :—

"This man had not been on shore for twenty-one days before he was taken ill, nor had he, when last on shore, entered any house except for the purpose of buying food, nor had he his clothes washed on shore. He slept on the main deck amongst the ward-room servants and bandsmen, and was not messing, nor did it appear that he had any communication with, a man who was sent to Plymouth Hospital with symptoms suspicious of measles, which disease existed in a house frequented by the man when on shore."

Two

* *Ante*, p. 223, *et seq.* † Surgeon W. G. I. Ayre.

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Two cases of measles appeared in the Chanticleer, whilst the ship was at Portsmouth, in the persons of domestics, who were at once sent to hospital.

There were eleven cases of measles in the Princess Royal. A young officer was the first attacked. The surgeon* says:—

"There is no evidence as to how the disease was contracted. He may have been exposed to its contagion while on shore at Batavia, where he remained three days with a few others belonging to his mess, a few of whom were likewise attacked. Two of the seamen attacked had charge of the junior officers' hammocks on the same side of the cockpit where the cases of measles were screened off from the rest. One case was complicated with bronchitis. In three weeks the eleven cases were convalescent."

There was a case of measles in the Serapis. It was the result of infection from some cases occurring amongst the military passengers on board, and which they had imported into the Serapis from the Jumna, in which ship, on her passage from Bombay to Suez, an outbreak of the disease had taken place. The disease was simple, well-marked, uncomplicated, and ran a mild course.

A case of measles occurred in the Simoom, at Portsmouth, in the person of a young officer. He was at once discharged to Haslar Hospital. No information is given as to the probable source of the disease.

Scarlatina.—Two cases of this formidable exanthem occurred in the Chanticleer after the ship leaving England. They were examples of what is termed scarlatina simplex, but one of them was followed by anasarca and iritis. They were as carefully as possible isolated from the ship's company, and the disease did not spread.

A young officer of the Terrible was attacked with scarlatina at a time when sore throats were rather prevalent amongst the ship's company, but only in his case did the usual symptoms of scarlet fever present themselves. He was at once sent to the English Hospital at Alexandria, and no other cases occurred.

Diseases of the Brain and Nervous System.—There was a slight increase in the ratio of cases coming under this head compared with the preceding year, but there was a considerable decrease in the invaliding rate. The ratio of mortality was precisely

* Surgeon F. Y. Toms.

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precisely the same in both years. Of 147 cases of all forms of disease placed under treatment, fifteen were invalided, and five terminated fatally. About one-half of those invalided suffered from epilepsy.

A fatal case of extensive disease of the brain occurred in the person of a petty officer of the Industry. He was placed on the sick-list on the 11th of April with a purulent discharge from the left ear, accompanied with severe pain in the mastoid process and left side of the head. He was nearly deaf in that ear, the external meatus of which was inflamed. Under the treatment to which he was subjected, he rapidly improved, and on the 15th was discharged to duty, his hearing having returned, and there being no visible sign of disease with the exception of a very slight discharge, occasionally seen, and which simple means readily checked. On the 26th of April he was again put on the list with a return of pain in the back part of the head and neck. He also complained of weakness, and restlessness at night. His appetite was fair, and his pulse and tongue normal. Two days afterwards the pain became fixed in the left mastoid process, which was tender when pressed upon; the skin over it was a little puffy, and the hearing in the left ear was again lost. Again he improved under the treatment directed against his symptoms until the 4th of May, when the pain increased very much, interfering with the motion of the head and neck. He also continued to complain of weakness, but his appetite did not fail. On the 12th of May he complained of severe pain in the cervical and upper part of the dorsal vertebræ, shooting across the shoulders. He experienced great difficulty in moving his body on account of the spinal pain, and complained of some weakness in the legs, but there was no paralysis, the bladder and bowels acting well. He did not at this time complain of headache so much as he had done before, but referred all pain to his back. The tongue and pulse continued normal, He continued in the same state until the evening of the 13th, when he became very much weaker, and complained of frontal headache. He had taken his food well during the day. During the night his strength continued to fail; he complained little, dozing at intervals, and being inclined to wander, but always answering quite collectedly when spoken to; profuse sweats also occurred. On the morning of the 14th, after his bowels had been moved by castor-oil, he expressed himself easier, and took some food, but he was evidently becoming weaker. The tongue became brownish in

in the centre; the pulse was 108 and weak, and the skin was bathed in perspiration. During the day he continued to sink; the pulse increased much in frequency, low muttering delirium set in, and in the afternoon several severe spasms shot through his whole body, affecting chiefly the abdominal region. He died suddenly during one of these convulsions, his limbs being drawn up, the face and hands becoming blue, and the pupils dilated. The following report of the post-mortem examination of the body is by the medical officer* of the ship, from whose detailed history of the case the foregoing abridgment has been made:—

"On taking off the calvarium the dura mater was found to be slightly adherent, probably from some old affection. A large collection of matter was found proceeding from an abscess on the back part of the left posterior lobe of the cerebrum. Another large abscess, containing very offensive pus, was also found in the left lobe of the cerebellum. The matter from the first mentioned abscess was spread over part of the substance of the brain, and had gravitated down into the foramen magnum. The vessels of the pia mater were slightly injected, and slight traces of inflammation were found in the membranes of the spinal cord, as far as the first dorsal vertebra."

There were three deaths from apoplexy; two occurred in the persons of stokers, one being a native of Bombay. They were occasioned by exposure to extreme heat. The third case occurred in the person of a young Marine. He had two fits, one on the day previous to his death, from which he rallied almost altogether apparently. On the following day, however, when returning from the night-stool, he had another fit and died almost immediately. The body was not examined after death.

Fourteen cases of delirium tremens were under treatment in the Force, one of which proved fatal. Of these, two occurred in the persons of commissioned officers; two in warrant officers; one in a petty officer; one in a leading seamen; three in able seamen; one in a stoker; one in a domestic; two in Marines; and in one instance the rating has not been ascertained.

Diseases of the Organs of Respiration.—There was a reduction in the ratio of cases coming under this head compared with the preceding year, but the invaliding rate was much higher. There was only a fractional difference between the

* Assistant Surgeon Wm. Redmond.

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the death-rates of the two years. Of 108 cases of inflammatory diseases of the lungs and pleura, six were invalided and six terminated fatally; and of fifty-five cases of pulmonary consumption, thirty-three were invalided and fifteen proved fatal.

The Ocean, Rodney, and Urgent appear to have had the largest number of cases of catarrh. In the Ocean, in which there were sixty-six cases of catarrh, the surgeon says:—

"Catarrh was very prevalent, owing to the great and frequent changes of temperature that occurred on the passage to China, and generally easily yielded to treatment; but in eleven cases discharged to hospital, and the one invalided, it quickly produced, in nine, tuberculosis, in one patient following a severe attack of syphilis; in another case inducing numerous dyspeptic symptoms, with excessive and unconquerable meteorismus; in another terminating, after many days' treatment, in pneumonia, and in the remaining one followed by general cachexia."

In the Rodney, in which there were 230 cases, the staff surgeon observes:—

"The great majority of these cases occurred at the beginning and at the end of the period embraced by this Journal; at Sheerness in March, during the prevalence of bitter east winds, while fitting out, and at Hong Kong in October, after a five months' voyage. Two typhoons having been experienced in the course of ten days, the men and the ship generally were very wet for days. On the 30th September there were thirty-six admissions to the sick-list, all with true febrile catarrh."

There were 117 cases of catarrh in the Urgent, more than one-half of which occurred amongst a number of supernumeraries, who were being conveyed from China to England, during the first five months of the year. The average duration of each case was between five and six days.

Diseases of the Heart and Bloodvessels.—The ratios of cases and of invaliding coming under this head are very nearly the same as in the preceding year, but the death-rate is considerably higher. Of sixty-four cases of functional and organic disease of the heart, thirteen were invalided, and six proved fatal, and there was one death from aneurism.

The case of aneurism was of some interest. The disease affected the cæliac axis, and occurred in the person of a Maltese domestic serving on board the Galatea, and who had joined that vessel at Malta. He had for some time been attending at the sick-bay complaining of rheumatic pains affecting the left shoulder and extending to the elbow; also

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of want of sleep, chilliness, slight cough without expectoration, and loss of appetite. The pulse was regular and moderately strong, averaging from 86 to 90. The bowels were obstinately constipated. On the morning of the 22nd October, in addition to these symptoms, he complained of slight pain in the left side of the chest, principally referred to the cardiac region. On stethoscopic examination, no bruit could be heard, but the heart's action was rather tumultuous. At 8 p.m., on the same day, while waiting at the sick-bay, he fainted and was carried in in a state of collapse, the pulse being almost imperceptible, and the hands and feet very cold, the coldness extending to the calves of the legs and the elbows. He soon became conscious, but the circulation was not fairly established until 10.30 p.m., when his hands and feet became warm; the pulse was 104, of fair strength; he was perfectly sensible, and said he had no pain whatever, only complaining of extreme chilliness. At 2 a.m. of the 23rd, after speaking to the attendant, he died suddenly. The following report of the post-mortem examination of the body is by one* of the medical officers of the ship, from whose detailed statement the foregoing abridged history of the case has been made:—

"Body emaciated. Abdomen tense and hard. On opening the chest, the pericardium stood out large and tense between the collapsed lungs. It contained no fluid. The right side of the heart was filled with a yellow clot, and both venæ cavæ with dark fluid blood. The left ventricle was much hypertrophied, but without dilatation or diminution of its cavity. The left auricle and pulmonary veins were empty; all the valves seemed competent, but all, except those of the pulmonary artery, showed traces of thickening, and one of the tricuspids had a small yellow fibrinous deposit on its lower border. The tissue of the heart was firm and healthy, but blanched. The aorta was extremely atheromatous, showing numerous excavations, white nodules, and calcareous plates. The lungs were slightly emphysematous at the margins anteriorly, and the lower lobe of the left lung was congested and studded with black spots. The right lung had one slight lateral adhesion, otherwise it was healthy. On opening the abdomen a quantity of blood escaped; some large clots were then removed, the largest rested in the pelvis behind the bladder. The stomach and intestines were first removed and appeared healthy. The liver and kidneys were healthy, as also the spleen, which had, however, a peculiar triangular indentation. The trunk of the cæliac axis was dilated considerably at its origin into an aneurism of the size of a large orange, with a small jagged opening anteriorly. It was almost filled with clot, and

* Assistant Surgeon Wm. L. Powell.

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and its coats varied from one-eighth to half an inch; the inner surface was covered with villous processes to which the yellow fibrinous clots adhered. The aneurism was united by firm adhesions to the middle third of the pancreas, to the small omentum, and the lobus Spigelii of the liver, and to the bodies of adjacent vertebræ, one of which was slightly roughened."

Diseases of the Alimentary Canal.—There was an increase in the ratio of cases and of mortality coming under this head compared with the preceding year, but the invaliding rate was much lower.

In the Himalaya, during the Michaelmas quarter of the year, when the vessel was at Malta, the ship's company suffered severely from an epidemic of diarrhœa, and a case of cholera occurred on board, which proved fatal. Of this outbreak the surgeon* reports as follows:—

"The large number of cases of disease of the stomach and bowels is chiefly due to an epidemic of diarrhœa during the month of September. The ship arrived at Malta on the 30th of August, and was placed alongside the quarantine ground, in the quarantine harbour, for the convenience of disembarking and embarking troops. On the following day (the 31st of August) a very heavy thunderstorm occurred, being the most considerable rainfall that the island had experienced for twelve months. This quantity of water flushed the sewers, and carried the accumulated filth into the harbour, causing a most unpleasant odour. The diarrhœa cases commenced immediately, and it would seem as if the crew had inhaled an amount of cholera poison, which acted on them during the following five weeks. It should be mentioned that cholera had been prevailing very severely in Sicily for some time prior to this date, and there is no doubt that sporadic cases had occurred in Malta, though the island had not been placed in quarantine. The 60th Regiment embarked on the 5th of September, and on the 7th, at sea, two fatal cases of cholera occurred amongst them, and three others before reaching Quebec. Only one case of cholera occurred amongst the crew of the ship, and it is singular that it should be thirteen days after the last case in the regiment. The patient was brought out of the stokehold in a state of collapse, having been at work until a short time previous. Warmth and restoratives were persevered in, but without doing the slightest good. It appeared, on inquiry, that this man had been suffering from diarrhœa for two days, but had not made any complaint.

"Many of the cases of diarrhœa were of a very intractable nature, accompanied by frequent vomiting, and cramps in the abdomen, and also subject to frequent relapses. By some practitioners many of these cases would be classed as cholera, but as they yielded to treatment, it is difficult to draw the line where the one disease ends and

* Surgeon T. B. Purchas.

and the other begins. The most successful treatment was found to be large doses of chloric æther and opium, with turpentine stupes, and fomentations, as requisite. After arriving in the Saint Lawrence the diarrhœa cases rapidly improved, and the attacks were much less numerous. The ship remained fourteen days in quarantine at Grosse Isle, below Quebec, but no more cases of cholera occurred."

An outbreak of choleraic diarrhœa occurred in the Jumna, on her passage to the Cape of Good Hope. The first case occurred on the 17th of July, four days after leaving Saint Vincent, and between that date and the 27th, when the last occurred, forty-six cases were entered on the sick-list, one of which is said to have been a case of Asiatic cholera; the man, however, recovered in a few days, and there can be little doubt that his case was only a severe form of the diarrhœa then epidemic. In order to ascertain the cause of this outbreak, a careful inspection of the ship was made, but without detecting any conditions likely to generate so much disease. The bread was then inspected, and found to be a little sour, consequent on the baker using salt water, instead of fresh, in mixing the yeast. The issue of this bread was stopped, and biscuit substituted for it. Attention was then drawn to the condition of some beef that was in use on board. The surgeon* says:—

"I next examined the fresh beef which had been kept in the ice-house since we left England, thirteen days ago; and this meat was served out to the crew on the morning of the 17th of July, which was the day the case of cholera and six cases of choleraic diarrhœa occurred. I examined that which was about to be issued on the morning of the 18th of July, and came to the conclusion from its softness, peculiar odour, and general appearance, although there was no putridity, that it had better not be served out to the ship's company. It was accordingly condemned and thrown overboard. The Marines used this beef on the 17th; they suffered more from diarrhœa, in proportion to their numbers, than the rest of the crew. The warrant officers (seven in number) refused this meat in their mess, and none of them suffered from diarrhœa.

It is possible that the peculiar condition of the atmosphere (the weather had changed from being fine and clear, and on the 16th and 17th became dull, cloudy, hot, and oppressive, with drizzling rain) at the time of this choleraic outbreak may have had a deleterious effect upon the meat, and generated some poisonous matter capable of producing the disease. I am inclined to this view of the case, but it is difficult with any degree of certainty to point to the real cause.

"The

* Surgeon L. H. J. Hayne, M.D

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"The last port the ship touched at, viz. Saint Vincent's, was said to be quite healthy, and free from cholera while we were there.

"I ought to have stated that one of the military officers had a very severe attack of choleraic diarrhœa. No troops were on board, but there were about twenty-seven officers and their families.

"There were some ten or twelve milder cases which were treated with chalk mixture, and not put on the list. With very few exceptions, all the cases commenced at night time. No deaths took place. The symptoms, in the cases which occurred after the first three or four days of the epidemic were milder than those of the first cases, and were treated at the outset with an emetic, which had a very good effect, and seemed to cut short the attack."

In the Vestal a case is returned as cholera. It occurred in the person of a seaman, who, while the ship was entering the Harbour of Bathurst, in the River Gambia, had been for some time exposed to the sun, previous to the vessel coming to an anchor. His symptoms were abdominal pain, and extreme prostration of strength. His hands were perfectly cold, wrist pulseless, eyes sunken, and expression of countenance haggard. The whole body was covered with a cold, clammy perspiration, but the characteristic discharges from the bowels and stomach were not present to complete it as a case of cholera. The man was discharged to duty in three days.

Diseases of the Liver and Spleen.—There was a great increase in the various ratios coming under this head, compared with the preceding year. Of ninety cases of disease of the liver placed under treatment, one was invalided, and four terminated fatally. Death, as a rule, was occasioned by suppurative inflammation of the organ.

Diseases of the Genito-Urinary Organs.—The ratios of cases and of mortality coming under this head were almost precisely the same as in the preceding year, but there was an increase in the invaliding rate. Of primary syphilis, 498 cases were under treatment, and 211 of secondary syphilis, and of these, six of the primary and seven of the secondary form of the disease were invalided. Each case of primary syphilis was, on an average, between thirty-seven and thirty-eight days under treatment, and each case of secondary syphilis about thirty days.

A fatal case of disease of the kidneys occurred in a mess-servant of the Curaçoa. The attack was complicated with disease of the liver. The man was of steady, temperate

habits, but at one period of his career he had served as stoker in various ships in the tropics, and he had also been the subject of dysenteric disease. His symptoms were not of so urgent a character, nor his duties so arduous, as to necessitate his being placed on the sick-list until four days before his death, when he complained of excessive debility, want of sleep, and anorexia. The urine was very scanty in quantity, but it was not albuminous, and was of normal specific gravity. There was slight œdema of the lower extremities. On the morning of the day of his death he was seized with rigors, accompanied with great dyspnœa, and he became partially comatose; the urine still continuing exceedingly scanty. Attempts to stimulate him proved fruitless, and he gradually sank and expired. On post-mortem examination of the body, very little fluid was found in the cavity of the pleura; the lungs were slightly congested; the heart was covered with fat, much enlarged, and very flabby; the right ventricle was completely filled with blood; the other chambers were normal, and the valves perfect. The liver was found to be much enlarged, particularly the right lobe, the upper surface of which was soft and much congested. The gall-bladder was quite empty. The kidneys were enlarged, hardened, and of a pale colour. The bladder was quite empty and contracted. The other viscera were healthy.

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Diseases not Classed.—A fatal case of pyæmia occurred in the person of a Marine artilleryman of the Lord Warden. He had been affected with inflammatory swelling of the right knee, and the inflammation had extended from the groin to the foot when he was discharged to the Naval Hospital at Lisbon. On admission, the leg was enormously swollen, and the greater part of it covered with large bladders and vesicles containing yellowish and dark-coloured offensive serum; deep-seated fluctuation was perceptible in the knee-joint. The patient was not quite collected, although he answered questions rationally. The pulse was 120, feeble; the tongue coated. There was great thirst, and anorexia. On the night of his admission he was restless and delirious, and on the following day he gradually became comatose and died. The following report of the post-mortem examination of the body is by the medical officer* in charge of the hospital.

"Body, stiff and rigid, but not emaciated. Skin of the whole surface

* Assistant Surgeon Thomas D. Allison, M.D.

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surface of the body of a yellowish hue, and the right leg covered with blisters of various sizes, containing yellowish and dark-coloured fluid. On making an incision into the right knee-joint, a large abscess was opened, involving the whole patella, and a profuse quantity of offensive pus escaped. The superficial and deep fasciæ of the leg were disorganised by inflammation and suppuration. The blood in the veins had a very dark and black appearance.

"*Head.*—On removing the calvarium a considerable quantity of blood escaped from the vessels of the dura mater; those covering the brain were in a high state of congestion; a small quantity of purulent matter was observed on the back part of the brain. On cutting into the brain-substance, blood escaped at several points; the ventricles were nearly filled with sero-sanguineous fluid; the brain was unusually soft; the cerebellum also was congested.

"*Thorax.*—Right lung black and mottled, and enormously congested. Upper lobe contained the remains of tubercle. The left lung was firmly adherent to the pleura, and also congested. The heart was natural in size, containing clots of blood and fibrine; the valves appeared healthy.

"*Abdomen.*—Liver congested, substance very soft and friable; no abscess. Kidneys slightly congested. Bladder contained about two ounces of offensive urine. Spleen almost decomposed. Intestines distended and presenting several inflammatory patches."

Wounds and Injuries.—Nine men sustained fatal fracture of the skull by falling from aloft; and one by being struck on the head by a bag of coals. A man was killed by the explosion of a gun at night quarters; one man sustained concussion of the brain by falling from aloft. A man who was engaged securing an anchor on which he was standing, was precipitated into the water by the chain stopper giving way. On being picked up he was found to be dead, and it was subsequently ascertained that his neck was dislocated. A man sustained fatal fracture of the neck, and another fatal fracture of the spine, by falling from aloft.

Thirteen men were drowned, and one died from the effects of submersion. Of these, ten fell overboard; one was washed overboard; one was drowned while bathing; one by being capsized in a boat; and one was drowned accidentally when on leave.

The total number of deaths was eighty-eight, which is in the ratio of 13·3 per 1,000 of mean force, being an increase, compared with the preceding year, equal to 4·3 per 1,000.

Invalided.—Four persons were invalided for the sequelæ of fever; fifteen for diseases of the brain and nervous system; forty-one

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forty-one for diseases of the respiratory organs, thirty-three of whom laboured under pulmonary consumption; seventeen for diseases of the heart and bloodvessels; one for diarrhœa; one for disease of the liver; one for disease of the spleen; nineteen for diseases of the genito-urinary organs, chiefly syphilitic; eleven for rheumatism; six for diseases of the bones and joints; six for diseases of the special senses; seven for diseases of the skin and cellular tissue; twenty for diseases not classed; fifteen for wounds and injuries of various kinds; and thirteen for hernia. The total number invalided was 177, which is in the ratio of 26·8 per 1,000, being a reduction, compared with the preceding year, equal to 6·6 per 1,000.

TABLE, No. 1.

SHOWING the Number of Cases of all DISEASES and INJURIES, and the Number INVALIDED and DEAD, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Continued and Remittent Fever	363	55·	4	·6	13	1·9
Intermittent Fever	47	7·1	—	—	—	—
Small-pox	15	2·2	-	-	1	·1
Measles	16	2·4	—	—	—	—
Scarlatina	3	·4	—	—	—	—
Disease of the Brain	6	·9	2	·3	1	·1
Apoplexy	4	·6	-	-	3	·4
Epilepsy	26	3·9	7	1·	—	—
Paralysis	10	1·5	4	·6	—	—
Insanity	6	·9	1	·1	—	—
Delirium Tremens	14	2·1	-	-	1	·1
Neuralgia	33	5·	—	—	—	—
Vertigo	45	6·8	1	·1	—	—
Insolation	3	·4	—	—	—	—
Inflammation of the Lungs and Pleura	108	16·3	6	·9	6	·9
Phthisis and Hæmoptysis	55	8·3	33	5·	15	2·2
Influenza and Catarrh	1,044	158·1	2	·3	—	—
Cynanche	259	39·2	—	—	—	—
Asthma	1	·1	—	—	—	—
Disease of the Heart, Functional and Organic	64	9·6	13	1·9	6	·9
Hæmorrhoids	21	3·1	1	·1	—	—
Varix	14	2·1	3	·4	—	—
Aneurism	1	·1	-	-	1	·1
Disease of the Stomach and Bowels	7	1·	—	—	—	—
Dysentery	26	3·9	-	-	2	·3
Diarrhœa	592	89·6	1	·1	2	·3
Cholera	3	·4	-	-	1	·1
Constipation and Colic	123	18·6	—	—	—	—
Colica Pictonum	2	·3	—	—	—	—
Disease of the Liver	90	13·6	1	·1	4	·6
Jaundice	25	3·7	—	—	—	—
Splenitis	1	·1	1	·1	—	—

TABLE, No. 1.—Showing the Number of Cases of all Diseases, &c.—*continued.*

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	24	3·6	2	·3	1	·1
Syphilis, Primary	498	75·4	6	·9	—	—
Syphilis, Secondary	211	31·9	7	1·	—	—
Gonorrhœa	200	30·3	—	—	—	—
Orchitis	143	21·6	1	·1	—	—
Stricture	31	4·6	1	·1	—	—
Incontinence of Urine, &c.	9	1·3	2	·3	—	—
Rheumatism	573	86·8	11	1·6	—	—
Gout	27	4·	—	—	—	—
Disease of the Bones and Joints	40	6·	6·	·9	—	—
Inflammation of the Eyes	111	16·8	1	·1	—	—
Amaurosis and Cataract	15	2·2	2	·3	—	—
Otitis and Deafness	30	4·5	3	·4	—	—
Erysipelas	38	5·7	—	—	—	—
Scrofula	14	2·1	1	·1	—	—
Bubo (*Symp.*)	111	16·8	—	—	—	—
Phlegmon and Abscess	2,071	313·7	2	·3	1	·1
Ulcer	474	71·8	4	·6	—	—
Psora	82	12·4	—	—	—	—
Eruptions, &c.	89	13·4	—	—	—	—
Pyœmia	-	-	-	-	1	·1
Dyspepsia and Debility	570	86·3	19	2·8	—	—
Scurvy	1	·1	—	—	—	—
Dropsy	8	1·2	—	—	—	—
Worms	12	1·8	—	—	—	—
Headache	65	9·8	1	·1	—	—
Wounds and Injuries	2,053	311·	15	2·2	15	2·2
Burns and Scalds	129	19·5	—	—	—	—
Hernia	22	3·3	13	1·9	—	—
Drowned	-	-	-	-	13	1·9
Alcoholic Poisoning	1	·1	—	—	—	—
Submersion	1	·1	-	-	1	·1
TOTAL	10,680	1618·1	177	26·8	88	13·3

TABLE, No. 2.

SHOWING the Number of DAYS' SICKNESS from each DISEASE, and from INJURIES, the Average Number of Men Sick Daily, with the Ratio per 1,000 of Force.

DISEASE OR INJURY,	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Continued and Remittent Fever	4,454	1,200	5,654	15·4	2·3
Intermittent Fever	513	127	640	1·7	·2
Small-pox	40	259	299	·8	·1
Measles	200	411	611	1·6	·2
Scarlatina	59	78	137	·3	—
Varicella	—	41	41	·1	—
Disease of the Brain	102	88	190	·5	—
Apoplexy	22	37	59	·1	—
Epilepsy	358	229	587	1·6	·2
Paralysis	71	565	636	1·7	·2
Insanity	59	344	403	1·1	·1
Delirium Tremens	70	77	147	·4	—
Neuralgia	441	52	493	1·3	·1
Vertigo	261	162	423	1·1	·1
Insolation	7	—	7	—	—
Inflammation of the Lungs and Pleura	1,977	2,785	4,762	13·	1·9
Phthisis and Hæmoptysis	1,294	2,529	3,823	10·4	1·5
Influenza and Catarrh	6,369	647	7,016	19·2	2·9
Cynanche	1,667	297	1,964	5·3	·8
Asthma	47	63	110	·3	—
Disease of the Heart, Functional and Organic	942	752	1,694	4·6	·6
Hæmorrhoids	186	14	200	·5	—
Varix	140	57	197	·5	—
Aneurism	1	69	70	·1	—
Disease of the Stomach and Bowels	61	105	166	·4	—
Dysentery	638	76	714	1·9	·2
Diarrhœa	3,594	213	3,807	10·4	1·5
Cholera	7	2	9	—	—
Constipation and Colic	452	28	480	1·3	·1
Disease of the Liver	485	181	666	1·8	·2
Jaundice	260	163	423	1·1	·1
Splenitis	7	22	29	—	—

Table No. 2.—Showing the Number of Days' Sickness from each Disease, &c.—*cont^d*.

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Avarage Number of Men Sick Daily.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	249	209	458	1·2	·1
Syphilis, Primary	9,138	9,403	18,541	50·7	7·6
Syphilis, Secondary	3,987	2,501	6,488	17·7	2·6
Gonorrhœa	3,650	871	4,521	12·3	1·8
Orchitis	2,378	1,047	3,425	9·3	1·4
Stricture	254	667	921	2·5	·3
Incontinence of Urine, &c.	123	43	166	·4	—
Rheumatism	6,613	3,541	10,154	27·8	4·2
Gout	300	91	391	1·	·1
Diseases of the Bones and Joints	606	504	1,110	3·	·4
Inflammation of the Eyes	1,264	632	1,896	5·1	·7
Amaurosis and Cataract	191	45	236	·6	—
Otitis and Deafness	234	147	381	1·	·1
Erysipelas	410	180	590	1·6	·2
Scrofula	248	291	539	1·4	·2
Bubo (*Symp.*)	2,296	577	2,873	7·8	1·1
Phlegmon and Abscess	16,582	1,656	18,238	49·9	7·5
Ulcer	6,791	3,734	10,525	28·8	4·3
Psora	469	277	746	2·	·3
Eruptions, &c.	1,117	1,212	2,329	6·3	·9
Cancer	-	4	4	—	—
Purpura	-	43	43	·1	—
Dyspepsia and Debility	4,237	1,006	5,243	14·3	2·1
Scurvy	5	-	5	—	—
Dropsy	129	118	247	·6	—
Worms	36	16	52	·1	—
Headache	452	85	537	1·4	·2
Wounds and Injuries	20,117	3,029	23,146	63·4	9·6
Burns and Scalds	1,284	63	1,347	3·6	·5
Hernia	219	33	252	·6	—
Poisoning by Lead	55	2	57	·1	—
Submersion	7	-	7	—	—
TOTAL	108,225	43,700	151,925	416·2	63·

TABLE, No. 3. - - - - - - - -

SHOWING the Number INVALIDED from each Ship - - - - -

CAUSE of INVALIDING.	Bristol.	Chanticleer.	Charybdis.	Curaçoa	Daphne.	Dryad.	Eclipse.	Esk.	Galatea.	Himalaya.	Industry.	Jaseur (Second Commission.)	Jumna.	Lord Clyde.
Continued and Remittent Fever	1	–	–	–	–	–	–	–	–	–	–	–	–	–
Inflammation of the Brain -	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Insanity - - - - -	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Epilepsy - - - - -	2	–	–	–	–	–	–	–	1	–	–	–	1	1
Paralysis - - - -	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Vertigo - - - - - -	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Inflammation of the Lungs and Pleura - - - -	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Phthisis and Hæmoptysis -	1	–	2	–	–	1	1	1	3	1	–	1	3	2
Catarrh - - - - - -	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Disease of the Heart, Functional and Organic - - -	1	–	–	–	–	–	–	–	–	1	–	1	2	–
Hæmorrhoids - - -	–	–	–	–	–	–	–	–	1	–	–	–	–	–
Varix - - - - - -	–	–	–	–	1	–	–	–	–	–	1	–	–	–
Diarrhœa - - - - -	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Disease of the Liver - -	–	–	–	–	–	–	–	–	–	1	–	–	–	–
Splenitis - - - - - -	–	–	–	–	–	–	–	–	–	–	–	–	1	–
Inflammation of the Kidneys and Bladder - - -	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Syphilis, Primary - - -	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Syphilis, Secondary - -	–	1	–	–	–	–	–	–	1	–	–	–	–	–
Orchitis - - - - - -	–	–	–	1	–	–	–	–	–	–	–	–	–	–
Stricture - - - - -	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Incontinen of Urine, &c. -	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Rheumatism - - - - -	–	–	–	–	–	1	–	–	–	1	–	–	–	1
Diseases of the Bones and Joints	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Inflammation of the Eyes -	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Amaurosis and Cataract - -	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Otitis and Deafness - -	–	–	–	–	1	–	–	–	–	–	–	–	–	–
Scrofula - - - - -	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Abscess - - - - - -	–	–	–	–	–	–	–	–	*a*2	–	–	–	–	–
Ulcer - - - - - -	–	–	–	–	–	1	–	–	–	–	–	–	–	–
Dyspepsia and Debility - -	–	–	–	–	–	1	–	–	1	–	–	–	2	–
Headache, &c. - - - -	–	–	–	–	–	–	–	–	–	1	–	–	–	–
Wounds - - - - -	–	–	–	–	–	–	–	–	1	1	–	–	–	–
Hernia - - - - - -	–	–	1	–	1	–	–	–	–	–	1	–	2	–
TOTAL - - -	5	1	3	1	3	4	1	1	10	6	2	2	11	4

a Fistula in Ano.

- - - - - - - - - TABLE, No. 3.

- - - - - employed in the IRREGULAR FORCE.

Lord Warden.	Megæra.	Nymphe.	Ocean.	Orontes.	Phœbe.	Princess Royal.	Racoon.	Rapid.	Rinaldo.	Rodney.	Royal Alfred.	Serapis.	Shearwater.	Simoom.	Speedwell (First Commission.)	Supply.	Sutlej.	Sylvia.	Tamar.	Terrible.	Urgent.	Vestal.	Virago.	Zebra.	TOTAL.
–	–	–	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	4
–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	1	–	–	–	–	2
1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1	–	–	–	7
–	–	–	–	–	1	–	1	–	–	–	–	–	–	1	–	–	–	–	–	1	–	–	–	–	4
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1
–	–	–	–	–	–	–	–	–	1	2	–	–	–	–	–	–	–	–	–	3	–	–	–	–	6
1	–	–	–	–	–	3	–	–	–	4	3	–	–	–	–	–	1	–	–	2	1	1	1	–	33
–	–	–	1	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
2	–	–	–	–	–	2	–	–	–	1	–	1	–	–	–	–	–	–	–	1	1	–	–	–	13
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	1	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	5	–	–	–	–	–	–	–	1	–	–	–	–	–	–	6
–	–	–	–	–	–	–	–	–	–	2	–	3	–	–	–	–	–	–	–	–	–	–	–	–	7
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	2
1	–	–	–	–	–	–	1	–	–	2	–	–	–	–	–	–	–	–	–	1	2	–	1	–	11
–	–	–	–	–	1	–	–	–	–	2	–	–	–	–	1	–	–	–	–	2	–	–	–	–	6
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	1
1	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1	–	–	–	–	3
–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
1	–	–	–	–	1	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	4
–	1	–	4	1	–	1	–	–	–	5	–	–	–	–	–	–	–	3	–	–	–	–	–	–	19
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	1	4	–	1	–	2	1	–	–	–	–	1	–	–	–	1	1	–	–	1	15
–	–	–	3	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1	1	–	–	2	–	13
8	1	1	11	1	5	10	2	1	3	30	4	6	1	1	1	1	1	4	1	16	8	1	4	1	177

TABLE, No. 4.

SHOWING the Number of DEATHS in each Ship.

CAUSE OF DEATH.	Barrosa.	Bristol.	Chanticleer.	Cossack.	Crocodile.	Curaçoa.	Daphne.	Dryad.	Galatea.	Hesper.	Himalaya.	Industry.	Jumna.	Lord Clyde.
Continued and Remittent Fever	–	1	–	–	–	–	–	–	3	–	–	–	–	–
Small-pox	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Inflammation of the Brain	–	–	–	–	–	–	–	–	–	–	–	1	–	–
Apoplexy	–	–	–	–	–	–	–	–	–	–	–	–	1	–
Delirium Tremens	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Inflammation of the Lungs and Pleura	1	–	1	–	–	–	–	–	–	–	–	–	–	–
Phthisis	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Disease of the Heart	–	–	–	–	1	–	–	–	–	–	–	–	–	–
Aneurism	–	–	–	–	–	–	–	–	1	–	–	–	–	–
Diarrhœa	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dysentery	–	–	–	–	–	1	–	–	–	–	–	–	–	–
Cholera	–	–	–	–	–	–	–	–	–	–	1	–	–	–
Disease of the Liver	–	–	–	–	–	–	–	1	–	1	1	–	–	–
Inflammation of the Kidneys	–	–	–	–	–	1	–	–	–	–	–	–	–	–
Abscess	–	–	–	1	–	–	–	–	–	–	–	–	–	–
Pyœmia	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Wounds and Injuries	–	1	–	–	–	–	1	–	–	–	–	–	–	–
Drowned	–	1	–	–	–	–	–	–	–	–	1	–	–	1
Submersion	–	–	–	–	–	–	–	–	1	–	–	–	–	–
TOTAL	1	3	1	1	1	2	1	1	5	1	3	1	1	1

TABLE, No. 4.

employed in the IRREGULAR FORCE.

Lord Warden.	Megæra.	Nelson.	Ocean.	Orontes.	Pantaloon.	Plover.	Princess Royal.	Pylades.	Racoon.	Rinaldo.	Rodney.	Royal Alfred.	Salamander.	Scylla.	Simoom.	Spiteful.	Sutlej.	Sylvia.	Tamar.	Terrible.	Urgent.	Valorous.	Vestal.	Virago.	TOTAL.
–	–	–	2	–	–	–	–	–	–	–	3	–	1	–	1	–	–	1	1	–	–	–	–	–	13
–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1	–	–	–	–	3
–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	1	–	–	–	1	1	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	6
1	1	–	1	–	–	–	1	–	2	–	2	1	–	–	2	–	–	–	1	1	1	–	1	–	15
–	–	–	–	–	–	–	–	–	–	–	2	–	–	–	–	–	1	–	–	–	1	1	–	–	6
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	1	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	2
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	4
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	1	1	–	1	–	–	–	–	–	3	3	–	2	–	–	1	–	–	1	–	–	–	–	15
–	–	–	1	–	–	–	1	–	–	1	1	–	–	–	1	1	–	1	1	–	1	–	–	1	13
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
2	1	1	5	1	1	1	2	1	3	1	14	4	1	2	4	1	2	3	5	3	4	1	1	1	88

160.

TABLE, No. 5.

SHOWING the Names of the SHIPS; the Average Complements; the Number of Cases; the Total Number of Days' Sickness on Board; the Average Number of Men Sick Daily, in each SHIP, and the Number Discharged to Hospital.

C. Commissioned. D. Returns defective. P. O. Paid off. S. C. Station changed.

RATE, &c.	NAMES OF SHIPS.	Where Commissioned.	When Commissioned.	Number of Guns.	Tonnage.	Horse Power.	Period.	Average Complements.	Average Complements corrected for Time.	Number of Cases of Disease and Injury.	Number of Days' Sickness on Board.	Average Number of Men Sick Daily for Twelve Months.	Ratio per 1,000 of Average Force of each Ship.	Number Discharged to Hospital.
Ironclad	Lord Clyde - S. C.	Devonport	1 June 1866	24	4,067	S.1,000	1 Oct. to 31 Dec.	645	160	212	2,426	6·6	41·2	42
	Lord Warden - C.	Devonport	31 July 1867	21	4,080	S.1,000	10 Aug. to 31 Dec.	590	250	443	3,879	10·6	42·4	54
	Ocean - S. C.	Devonport	30 July 1866	24	4,047	S.1,000	1 July to 31 Dec.	655	325	623	10,295	28·2	86·7	27
	Royal Alfred - C.	Portsmouth	15 Jan. 1867	18	4,068	S. 500	14 Jan. to 30 June	555	255	364	4,245	11·6	45·4	31
Second Rate	Gibraltar - P. O.	Devonport	12 Sept. 1863	81	3,729	S. 800	1 to 12 January -	860	30	33	219	·6	20·	16
	Princess Royal - P. O.	Devonport	15 Feb. 1864	73	3,129	S. 400	1 April to 14 Aug.	800	300	160	3,216	8·8	29·3	21
	Rodney - C.	Sheerness	21 Jan. 1867	72	2,770	S. 500	29 Jan. to 30 Sept.	820	545	1,209	7,815	21·4	39·2	109
Fourth Rate	Bristol	Sheerness	4 Oct. 1865	31	3,027	S. 600	1 Jan. to 31 Mar.	540	135	402	3,085	8·4	62·2	49
	Galatea - C.	Devonport	24 Jan. 1867	26	3,227	S. 800	22 Jan. to 31 Dec.	500	470	504	6,794	18·6	39·5	24
	Phœbe - C.	Devonport	6 May 1867	30	2,896	S. 500	6 May to 30 Sept.	545	220	194	2,222	6·	27·2	19
	Sutlej - P. O.	Portsmouth	20 Sept. 1862	35	3,066	S. 500	1 April to 1 Aug.	515	170	255	2,749	7·5	44·1	8
Fifth Rate	Curaçoa - P. O.	Portsmouth	22 April 1863	31	1,571	S. 350	1 Jan. to 20 Feb.	325	50	19	299	·8	16·	4
	Terrible	Sheerness	28 April 1865	21	1,850	P. 800	Year -	320	320	481	5,828	15·9	46·8	19
Sixth Rate	Barrosa - P. O.	Sheerness	26 Sept. 1862	21	1,700	S. 400	1 to 30 January -	200	15	11	161	·4	26·6	9
	Charybdis - C.	Sheerness	7 Jan. 1867	18	1,506	S. 400	7 Jan. to 30 June	260	125	202	2,233	6·1	48·8	5
	Cossack - P. O.	Sheerness	19 May 1863	20	1,296	S. 250	1 Jan. to 23 Feb.	245	40	35	433	1·1	27·5	-
	Esk - P. O.	Portsmouth	20 May 1863	21	1,169	S. 250	1 July to 17 Oct.	215	60	97	822	2·2	36·6	4
	Pylades - C.	Sheerness	Dec. 1867	17	1,278	S. 350	5 to 31 December	205	15	11	54	·1	6·6	1
	Racoon - C.	Devonport	3 Nov. 1866	22	1,467	S. 400	1 Jan. to 30 June	280	140	217	1,924	5·2	37·1	39
	Scylla - P. O.	Sheerness	9 Sept. 1863	21	1,467	S. 400	1 April to 6 Aug.	270	90	44	917	2·5	27·7	5
	Valorous - P. O.	Devonport	15 April 1863	16	1,257	P. 400	1 July to 13 Sept.	230	50	41	613	1·6	32·	5

Sloop	Buzzard	C.	Devonport	19 Dec. 1867	2	980	P. 300	20 to 31 December	65	5	1	3	-	-	-
	Cameleon	C.	Sheerness	7 May 1867	7	952	S. 200	11 May to 30 Sept.	180	65	171	1,297	3·5	53·8	9
	Chanticleer	C.	Woolwich	4 April 1867	7	950	S. 200	1 April to 30 June	195	50	65	746	2·	40·	3
	Danae	C.	Portsmouth	28 Nov. 1867	6	1,287	S. 350	5 to 31 December	140	10	12	42	·1	10·	-
	Daphne	C.	Devonport	12 June 1867	4	1,081	S. 300	1 July to 30 Sept.	150	35	68	563	1·5	42·8	5
	Dryad	C.	Devonport	3 May 1867	4	1,086	S. 300	11 May to 31 Dec.	135	80	248	2,224	6·	75·	6
	Nymphe	C.	Woolwich	13 June 1867	4	1,084	S. 300	1 July to 30 Sept.	145	35	49	336	·9	25·7	4
	Pantaloon	P. O.	Bombay	15 Jan. 1868	11	574	S. 150	1 Jan. to 6 March	130	25	25	202	·5	20·	-
	Rapid	P. O.	Woolwich	12 June 1862	11	672	S. 150	1 to 24 January	125	10	14	77	·2	20·	3
	Rinaldo	C.	Portsmouth	1 Nov. 1866	7	951	S. 200	1 Jan. to 31 Mar.	185	45	104	1,539	4·2	93·3	-
	Rosario	C.	Woolwich	28 Sept. 1867	3	673	S. 150	1 Oct. to 31 Dec.	125	30	57	336	·9	30·	1
	Salamander	-	Sheerness	10 Dec. 1863	6	818	P. 220	1 Oct. to 31 Dec.	105	25	68	969	2·6	104·	4
	Shearwater	-	Devonport	13 Dec. 1862	4	669	S. 150	1 Oct. to 31 Dec.	120	30	79	830	2·2	73·3	1
	Spiteful	S. C.	Woolwich	2 Nov. 1865	6	1,054	P. 280	1 Oct. to 31 Dec.	165	40	119	1,059	2·9	72·5	1
	Vestal	C.	Devonport	26 Jan. 1867	4	1,081	S. 300	26 Jan. to 30 June	160	65	201	2,018	5·5	84·6	28
	Virago	-	Sheerness	1 Dec. 1866	6	1,059	P. 220	1 July to 31 Dec.	220	110	215	2,208	6·	54·5	-
	Zebra	C.	Woolwich	13 Feb. 1867	7	951	S. 200	7 Mar. to 30 June	175	40	78	734	2·	50·	6
Gun Vessel	Coquette	P. O.	Portsmouth	7 April 1862	4	677	S. 200	1 to 22 January	80	5	7	133	·3	60·	3
	Eclipse	P. O.	Sheerness	26 Sept. 1862	4	700	S. 200	1 Jan. to 9 Feb.	80	10	24	282	·7	70·	1
	Espoir	P. O.	Devonport	7 Nov. 1864	5	428	S. 80	1 Oct. to 24 Dec.	70	15	21	150	·4	26·6	1
	Jaseur	P. O.	Sheerness	8 April 1863	5	425	S. 80	1 Jan. to 13 Feb.	70	10	13	134	·3	30·	2
	Jaseur	C.	Sheerness	26 Aug. 1867	5	425	S. 80	24 Aug. to 30 Sept.	70	5	11	44	·1	20·	-
	Lee	C.	Sheerness	10 June 1867	5	431	S. 80	13 July to 30 Sept.	60	15	88	658	1·8	120·	6
	Myrmidon	C.	Chatham	29 Oct. 1867	4	697	S. 200	30 Oct. to 31 Dec.	90	15	28	172	·4	26·6	-
	Pandora	P. O.	Portsmouth	20 Mar. 1863	5	426	S. 80	1 Jan to 21 Feb.	75	10	4	152	·4	40·	1
	Plover	C.	Woolwich	25 Sept. 1867	3	663	S. 160	4 Oct. to 31 Dec.	75	20	21	116	·3	15·	7
	Speedwell	P. O.	Woolwich	8 Sept. 1863	5	428	S. 80	1 Jan to 16 Feb.	70	10	30	265	·7	70·	1
	Speedwell	C.	Woolwich	24 July 1867	5	428	S. 80	13 Aug. to 30 Sept.	65	10	17	181	·4	40·	2
Steam Vessel	Hydra (surveying)	S. C.	Malta	10 Nov. 1863	6	818	P. 220	1 Oct. to 31 Dec.	130	35	34	357	·9	25·7	-
	Sylvia	C.	Woolwich	12 Oct. 1866	5	695	S. 150	1 Jan. to 30 June	85	40	111	1,120	3·	75·	5
Troop Ship	Crocodile	C.	-	15 April 1867	3	4,173	S. 700	1 July to 31 Dec.	230	120	94	971	2·6	21·6	10
	Himalaya	C.	Portsmouth	19 Feb. 1867	2	3,453	S. 700	20 Feb. to 31 Dec.	220	180	371	3,426	9·3	51·6	33
	Jumna	C.	-	March 1867	3	4,173	S. 700	10 June to 30 Sept.	220	60	335	2,058	5·6	93·3	15
	Malabar	C.	-	March 1867	3	4,173	S. 700	1 July to 30 Sept.	265	65	107	1,099	3·	46·1	3
	Orontes	-	Portsmouth	4 Jan. 1867	4	2,812	S. 500	Year	190	190	266	1,886	5·1	26·8	34
	Serapis	C.	-	April 1867	3	4,173	S. 700	1 July to 31 Dec.	250	125	145	1,301	3·5	28·	6
	Simoom	-	Portsmouth	2 Feb. 1866	4	1,980	S. 400	Year	160	160	199	2,950	8·	50·	23
	Tamar	-	Sheerness	10 Oct. 1863	2	2,812	S. 500	Year	215	215	356	4,402	12·	55·8	14
	Urgent	-	Portsmouth	27 July 1864	4	1,981	S. 400	Year (Supernumeraries)	135 / 510	450	755	8,417	23·	51·1	25
Store Ship	Hesper	P. O.	Hong Kong	23 Jan. 1866	2	808	S. 150	1 July to 14 Sept.	70	15	30	327	·8	53·3	1
	Industry	-	Woolwich	25 April 1866	2	638	S. 80	Year	65	65	89	883	2·4	36·9	10
	Megæra	-	Devonport	18 Jan. 1865	6	1,395	S. 350	Year	160	160	174	2,046	5·6	35·	12
	Supply	-	Woolwich	18 Nov. 1865	4	638	S. 80	Year	60	60	132	1,393	3·8	63·3	7
	Nelson	-	Lent to Colonial Government at Melbourne					26 Aug. to 31 Dec.	210	70	87	487	1·3	18·5	5

TABLE, No. 6. - - - - - - - - -

SHOWING the Number of CASES of all DISEASES and - - - - - -

DISEASE OR INJURY.	Barrosa.	Bristol.	Buzzard.	Cameleon.	Chanticleer.	Charybdis.	Coquette.	Cossack.	Crocodile.	Curaçoa.	Danae.	Daphne.	Dryad.	Eclipse.	Esk.	Espoir.
Continued and Remittent Fever	–	17	–	3	5	–	–	–	3	–	–	3	20	5	–	2
Intermittent Fever	1	1	–	–	1	–	–	–	–	–	–	–	1	–	–	1
Small-pox	1	–	–	4	–	1	–	–	–	–	–	–	–	–	–	–
Scarlatina	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–
Measles	–	1	–	–	2	–	–	–	–	–	–	–	–	–	–	–
Disease of the Brain	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Apoplexy	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Epilepsy	–	–	–	–	1	–	–	–	3	–	–	–	1	–	–	–
Paralysis	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Insanity	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Delirium Tremens	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Neuralgia	–	1	–	–	–	–	–	–	–	–	–	–	–	1	2	–
Vertigo	–	–	–	–	–	–	–	–	–	–	–	–	10	–	–	–
Insolation	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Inflammation of the Lungs and Pleura	–	19	–	2	–	3	–	–	4	–	–	–	–	–	–	–
Phthisis and Hæmoptysis	–	1	–	–	–	2	–	–	1	–	–	–	2	–	1	–
Influenza and Catarrh	1	18	–	4	8	43	–	3	2	6	1	8	6	2	13	4
Cynanche	–	14	–	2	–	5	–	2	4	1	1	1	3	1	1	–
Asthma	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Disease of the Heart, Functional and Organic	–	2	–	–	–	–	–	–	1	–	–	–	2	–	–	–
Aneurism	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Hæmorrhoids	–	–	–	2	–	–	–	–	–	–	–	–	–	–	–	–
Varix	–	–	–	–	–	–	–	–	–	–	–	1	2	–	–	–
Inflammation of the Stomach and Bowels	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Cholera	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Dysentery	–	–	–	–	2	–	–	–	–	–	–	–	1	–	–	–
Diarrhœa	–	9	–	21	1	5	–	3	5	–	–	1	22	–	2	–
Constipation and Colic	–	5	–	2	1	1	–	–	1	1	–	–	2	–	1	–
Colica Pictonum	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Inflammation of the Liver	–	–	–	–	–	–	1	–	–	–	–	–	1	–	–	–
Jaundice	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Splenitis	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Inflammation of the Bladder and Kidneys	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–
Syphilis, Primary	–	15	–	–	3	8	–	–	5	–	–	3	1	–	5	–
Syphilis, Secondary	–	2	–	–	4	–	–	–	7	–	–	–	4	–	–	–
Gonorrhœa	–	11	–	–	3	–	–	1	–	–	–	2	–	–	–	–
Orchitis	–	4	–	4	2	3	–	–	–	–	1	4	1	–	–	–
Stricture of the Urethra	–	3	–	–	–	–	–	–	1	–	–	1	–	–	1	–
Incontinence of Urine, &c.	–	2	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Rheumatism	1	13	–	23	4	9	–	1	5	1	–	1	13	4	11	–
Gout	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–
Disease of the Bones and Joints	–	2	–	1	–	–	–	–	–	–	–	–	1	–	2	–
Inflammation of the Eyes	–	3	–	2	2	–	–	1	1	1	–	1	4	–	3	–
Amaurosis and Cataract	–	–	–	–	–	*b* 1	1	–	–	–	–	–	–	–	–	*d* 2
Otitis and Deafness	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–
Erysipelas	–	3	–	*a* 3	–	*a* 3	–	–	–	–	–	1	5	–	–	–
Scrofula	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–
Bubo (*Symp.*)	–	11	–	4	1	–	–	–	1	–	–	–	1	–	–	–
Phlegmon and Abscess	3	103	–	49	7	40	2	7	13	3	3	21	61	6	28	8
Ulcer	–	45	–	12	–	10	–	4	6	1	2	2	24	–	5	–
Psora	–	5	–	3	2	1	–	–	–	–	–	–	–	–	–	–
Eruptions, &c.	–	3	–	4	–	1	–	1	–	–	–	–	5	–	–	–
Dyspepsia and Debility	–	13	–	3	2	1	1	1	2	1	1	–	15	–	2	4
Scurvy	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Headache, &c.	–	6	–	2	–	1	–	–	3	–	–	–	–	–	–	–
Dropsy	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Worms	–	–	–	–	–	–	–	–	–	–	–	–	*c* 1	–	–	–
Wounds and Injuries	4	67	1	21	8	59	2	11	21	3	3	15	34	5	20	–
Burns and Scalds	–	3	–	–	2	4	–	–	4	–	–	1	4	–	–	–
Hernia	–	–	–	–	1	1	–	–	–	–	–	1	–	–	–	–
Submersion	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Poisoning	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
TOTAL	11	402	1	171	65	202	7	35	94	19	12	68	248	24	97	21

a 1 Erythema. *b* Nyctalopia. *c* Tænia. *d* Hæmeralopia.

TABLE, No. 6.

Injuries in each Ship employed in the IRREGULAR FORCE.

Galatea.	Gibraltar.	Hesper.	Himalaya.	Hydra.	Industry.	Jaseur.	Jaseur.	Jumna.	Lee.	Lord Clyde.	Lord Warden.	Malabar.	Megera.	Myrmidon.	Nelson.	Nymphe.	Ocean.	Orontes.	Pandora.
25	-	3	1	2	1	-	-	11	20	-	5	4	12	2	5	3	24	11	1
-	-	1	3	-	1	-	-	7	-	1	1	-	-	-	2	-	-	1	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
3	-	-	1	-	1	-	-	1	-	1	-	-	-	-	-	-	1	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
1	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-
-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	2	-	1	-	-	2	1	-	-	-	-	-	-	-	3	-	-
-	-	-	-	-	-	-	-	8	-	1	-	-	-	-	-	-	-	1	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	3	-	-	-	-	2	-	5	4	-	2	-	-	-	2	1	-
3	-	-	2	1	-	4	1	3	-	2	2	1	1	1	-	-	1	-	-
24	14	5	24	6	10	-	-	20	5	17	47	4	16	4	2	2	66	28	-
36	-	-	-	-	-	-	1	5	1	7	26	4	4	-	3	1	4	7	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	5	-	-	-	-	8	-	1	1	1	1	-	-	-	-	-	-
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	-	-	1	-	-	-	-	1	-	-	1	-	-	-	-	-	1	1	-
-	-	-	-	-	2	-	-	-	1	-	-	-	-	-	-	-	1	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	1	-	-	-	-	1	*f* 1	-	-	-	-	-	-	-	-	-	-
-	-	-	1	-	-	-	-	2	-	-	1	-	-	-	-	-	-	3	-
10	-	3	129	-	1	-	-	60	3	4	11	-	6	2	3	4	14	16	-
1	-	2	6	-	5	-	1	9	-	1	4	1	-	1	-	-	-	2	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
1	-	1	1	-	1	-	-	-	-	-	1	1	1	-	-	-	3	-	-
-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
1	-	-	-	-	-	-	-	1	-	-	1	-	-	-	*k* 1	-	-	3	-
16	2	-	17	6	-	1	-	15	3	15	29	4	7	1	10	5	21	9	-
6	-	-	8	-	-	-	-	2	-	3	17	-	2	-	3	-	11	1	-
12	3	-	6	2	-	-	-	8	2	7	6	4	2	-	-	2	1	10	-
6	-	-	3	-	-	-	-	3	1	5	3	2	-	1	-	-	21	6	-
-	-	-	3	-	1	-	-	2	-	2	2	-	-	-	2	1	1	1	-
34	-	-	12	-	-	-	-	12	2	18	35	1	18	2	6	2	39	23	-
-	-	-	1	-	-	-	-	-	-	-	-	-	2	-	1	-	3	1	-
-	-	-	-	-	-	-	-	-	-	3	-	-	-	-	1	-	-	3	-
5	-	-	-	-	2	-	-	-	1	1	4	-	-	-	3	1	9	4	-
-	-	-	1	-	1	-	-	4	1	-	1	-	-	-	-	1	*b* 7	-	-
e 4	-	-	*h* 4	-	-	-	-	-	-	-	-	-	-	-	*e* 1	-	1	2	-
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-
10	-	-	2	-	1	-	-	3	1	6	5	4	1	-	2	-	1	4	-
f 91	2	6	23	13	9	6	-	37	14	37	88	16	42	4	13	17	173	36	3
20	1	-	20	-	1	1	2	4	7	6	19	1	5	1	7	-	35	7	-
5	-	-	-	-	-	-	-	1	1	-	10	-	-	-	1	1	1	1	-
5	-	-	1	-	-	-	1	-	-	1	2	8	-	1	1	-	4	2	-
15	-	1	23	1	15	-	3	39	12	6	10	15	21	2	1	1	78	30	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	2	-
-	-	-	-	-	-	-	-	*i* 2	-	-	-	*i* 1	1	-	-	-	*i* 1	-	-
-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*c* 1	-
156	9	7	59	11	23	1	1	51	9	59	104	31	27	6	17	8	74	43	-
5	2	-	6	-	2	1	-	4	2	2	1	3	2	-	-	-	13	4	-
-	-	-	-	-	2	-	-	4	-	-	-	1	-	-	-	-	4	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
g 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
504	33	30	371	34	89	13	11	335	88	212	443	107	174	28	87	49	623	266	4

continued at page 383.

e Erythema. *f* 3 Fistula in Ano. *g* By Lead.

TABLE, No. 6.—Showing the Number of Cases of all Diseases and - - - -

continued from page 380.

DISEASE OR INJURY.	Pantaloon.	Phœbe.	Plover.	Princess Royal.	Pylades.	Racoon.	Rapid.	Rinaldo.	Rodney.	Rosario.	Royal Alfred.	Salamander.	Scylla.
Continued and Remittent Fever	-	18	1	4	-	8	-	-	14	-	1	2	1
Intermittent Fever	-	1	-	1	-	-	-	2	-	-	1	1	-
Small-pox	-	-	-	-	-	-	-	-	6	-	-	-	-
Scarlatina	-	-	-	-	-	-	-	-	-	-	-	-	-
Measles	-	-	-	11	-	-	-	-	-	-	-	-	-
Disease of the Brain	-	-	-	-	-	1	-	-	-	-	-	-	-
Apoplexy	-	-	-	-	-	-	-	-	1	-	-	-	-
Epilepsy	-	1	1	-	-	-	-	-	3	-	1	-	-
Paralysis	-	-	-	1	-	1	-	-	-	-	-	-	-
Insanity	-	1	-	-	-	-	-	-	-	-	-	-	-
Delirium Tremens	-	1	1	1	-	1	-	-	-	-	-	-	-
Neuralgia	-	-	-	-	-	-	-	-	-	-	3	-	-
Vertigo	-	-	-	-	-	-	-	-	-	-	-	-	-
Insolation	-	-	-	-	-	-	-	-	-	-	-	-	-
Inflammation of the Lungs and Pleura	-	4	-	4	-	3	-	1	7	-	3	-	1
Phthisis and Hæmoptysis	1	-	-	1	-	3	-	1	4	-	7	-	-
Influenza and Catarrh	-	16	2	1	-	9	7	9	230	2	44	5	2
Cynanche	-	5	-	-	1	2	-	3	26	2	10	2	-
Asthma	-	-	-	-	-	-	-	-	1	-	-	-	-
Disease of the Heart, Functional and Organic	-	-	1	2	-	1	-	-	7	-	2	-	-
Aneurism	-	-	-	-	-	-	-	-	-	-	-	-	-
Hæmorrhoids	-	-	-	1	-	-	-	-	-	1	1	1	-
Varix	-	-	-	-	-	-	-	-	1	-	1	-	-
Inflammation of the Stomach and Bowels	-	-	-	1	-	-	-	-	-	-	-	-	-
Cholera	-	-	-	-	-	-	-	-	-	-	-	-	-
Dysentery	-	1	-	8	-	-	-	-	1	1	-	-	-
Diarrhœa	1	5	-	2	1	4	-	-	22	4	3	6	5
Constipation and Colic	1	-	-	-	-	2	-	5	2	4	1	3	1
Colica Pictonum	-	-	-	-	-	2	-	-	-	-	-	-	-
Inflammation of the Liver	-	-	-	1	-	-	-	-	75	-	1	-	-
Jaundice	-	1	-	1	-	1	-	-	2	-	-	-	1
Splenitis	-	-	-	-	-	-	-	-	-	-	-	-	-
Inflammation of the Bladder and Kidneys	-	-	-	3	-	2	-	1	1	-	-	-	1
Syphilis, Primary	-	20	1	7	1	15	-	2	55	1	42	3	2
Syphilis, Secondary	-	6	1	13	-	3	-	3	35	1	22	3	3
Gonorrhœa	1	8	2	-	-	1	-	3	16	-	11	-	-
Orchitis	-	8	-	-	-	2	-	1	11	-	5	-	1
Stricture of the Urethra	-	-	-	-	-	-	-	-	1	-	1	-	-
Incontinence of Urine, &c.	-	-	-	-	-	-	-	1	-	-	-	-	-
Rheumatism	2	11	1	11	1	13	-	3	27	3	17	10	8
Gout	-	-	-	-	-	1	-	-	-	-	-	-	-
Disease of the Bones and Joints	-	2	-	-	-	-	-	-	6	-	3	-	-
Inflammation of the Eyes	-	2	-	5	-	3	-	2	6	-	12	3	-
Amaurosis and Cataract	-	-	-	-	-	-	-	-	-	-	-	-	-
Otitis and Deafness	-	-	-	1	-	-	-	-	3	-	2	-	-
Erysipelas	-	*e* 1	-	-	-	*a* 2	-	1	*e* 1	-	1	-	-
Scrofula	-	-	-	-	-	-	-	-	5	-	4	-	1
Bubo (*Symp.*)	-	1	-	1	-	5	-	1	6	-	6	-	-
Phlegmon and Abscess	9	26	-	16	4	52	2	40	252	16	74	7	3
Ulcer	-	10	-	11	-	33	-	4	29	2	9	3	-
Psora	-	-	-	-	-	-	-	-	20	-	3	-	-
Eruptions, &c.	-	-	-	3	-	2	-	-	8	-	2	-	-
Dyspepsia and Debility	-	7	2	1	-	2	-	1	52	1	2	-	1
Scurvy	-	-	-	-	-	-	-	-	-	-	-	-	-
Headache, &c.	1	-	-	2	-	-	-	-	-	-	-	6	1
Dropsy	-	-	-	-	-	*i* 1	-	-	-	-	-	-	-
Worms	-	-	-	-	-	-	-	-	-	-	-	-	-
Wounds and Injuries	9	37	8	40	3	40	5	19	251	19	68	13	12
Burns and Scalds	-	1	-	5	-	2	-	1	21	-	-	-	-
Hernia	-	-	-	1	-	-	-	-	1	-	-	-	-
Submersion	-	-	-	-	-	-	-	-	-	-	1	-	-
Poisoning	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	25	194	21	160	11	217	14	104	1,209	57	364	68	44

h 3 Erythema. *i* Œdema. *j* Hæmatemesis.

Injuries in each Ship employed in the Irregular Force—*continued.*

Serapis.	Shearwater.	Simoom.	Speedwell.	Speedwell.	Spiteful.	Supply.	Sutlej.	Sylvia.	Tamar.	Terrible.	Urgent.	Valorous.	Vestal.	Virago.	Zebra.	TOTAL.
3	1	7	2	1	9	10	–	7	22	3	30	–	26	2	3	363
–	–	1	–	–	–	–	–	3	4	1	6	–	4	–	–	47
–	–	–	–	–	–	–	–	–	1	1	–	–	1	–	–	15
–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	3
1	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	16
–	1	–	–	–	–	–	–	–	2	–	–	–	–	–	–	6
–	–	–	–	–	–	–	–	–	–	1	–	–	1	–	–	4
–	1	–	–	–	–	1	5	–	–	–	1	–	1	–	–	26
1	–	2	–	–	–	–	1	–	–	3	–	–	–	–	–	10
–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	6
–	–	5	–	–	–	–	1	–	–	3	–	–	–	–	–	14
–	–	–	–	–	–	1	1	1	–	9	3	1	–	1	–	33
–	–	–	–	–	–	–	1	1	–	2	18	–	4	–	–	45
–	–	–	–	1	–	1	–	–	–	–	1	–	–	–	–	3
–	–	11	–	–	–	–	7	–	4	5	6	–	1	–	1	108
–	–	1	–	–	–	–	–	–	–	2	4	1	1	–	–	55
19	8	10	2	–	10	6	15	2	11	69	117	3	16	12	4	1,044
6	–	3	2	–	4	1	6	–	10	16	15	–	1	5	5	259
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
1	–	–	–	2	2	–	8	1	1	2	1	1	5	2	1	64
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
2	–	–	–	–	1	–	–	2	–	1	3	–	–	–	–	21
–	–	–	–	–	1	–	–	–	–	–	4	–	–	–	–	14
–	–	–	–	–	–	–	–	–	2	3	–	–	–	–	–	7
–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	3
–	–	–	–	–	–	3	1	1	–	–	–	–	–	–	–	26
7	–	25	–	3	2	11	21	24	11	21	39	–	8	32	–	592
1	–	1	2	–	8	2	5	–	9	10	12	–	1	5	1	123
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
–	1	1	–	–	–	–	–	–	3	–	1	–	1	–	–	90
–	–	–	–	–	–	–	1	–	3	1	2	–	1	1	–	25
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
1	–	–	–	–	1	1	1	–	–	–	3	–	–	–	–	24
5	1	14	–	–	1	3	10	5	13	60	26	1	6	1	2	498
9	–	–	–	1	–	1	3	–	5	–	19	–	–	10	3	211
2	–	2	–	1	–	3	4	1	26	10	17	–	4	3	3	200
3	–	9	–	–	–	3	3	1	4	8	6	2	2	2	2	143
1	–	1	–	–	–	–	–	–	2	1	2	–	–	1	–	31
–	–	–	–	–	–	–	–	–	–	1	–	3	1	–	1	9
6	18	15	5	2	6	9	19	6	16	19	22	8	13	9	3	573
–	–	–	–	–	–	–	2	–	11	2	2	–	–	–	–	27
–	1	2	1	–	–	3	1	–	–	3	4	–	–	1	–	40
1	3	2	–	1	–	1	3	–	3	7	5	–	1	2	–	111
–	–	–	–	–	–	–	–	–	–	–	*b* 2	–	–	–	–	15
–	2	–	–	–	–	1	1	–	2	4	2	–	1	–	–	30
1	–	1	–	–	–	–	–	–	2	–	*e* 1	–	–	–	1	38
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	14
–	1	4	–	–	4	1	3	–	2	6	7	–	2	*l*	2	111
28	21	24	4	1	25	35	39	24	*g* 63	80	146	5	29	52	15	2,071
1	2	7	3	–	3	5	15	2	11	7	34	2	13	18	2	474
2	–	–	–	–	–	–	1	–	4	4	15	–	–	1	–	82
–	2	3	1	1	–	2	2	1	3	6	9	–	1	1	2	89
–	8	10	1	–	3	1	23	13	28	26	40	6	10	9	4	570
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	2	1	–	–	19	–	17	–	–	–	–	65
–	–	–	–	–	–	–	–	–	–	–	*i* 1	–	*i* 1	–	–	8
–	–	–	–	–	–	–	–	–	–	–	*m* 6	–	–	*c* 3	–	12
4	7	34	7	3	35	25	52	11	52	78	100	8	42	40	21	2,053
5	1	3	–	–	1	1	1	5	6	3	6	–	–	–	2	129
–	–	–	–	–	–	–	–	–	1	2	–	–	2	1	–	22
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
145	79	199	30	17	119	132	255	111	356	481	755	41	201	215	78	10,680

k Morbus Brighti. *l* Fistula in Ano. *m* 5 Tænia.

Total Force.

TOTAL FORCE.

THE Total Force in the Service afloat in the year 1867 was 51,000, and the total number of cases of disease and injury entered on the sick-list 65,045, which is in the ratio of 1298· per 1,000 of force, being a decrease compared with the preceding year equal to 15·4 per 1,000. In estimating the ratio of cases entered on the sick-list, the total force has been taken as 50,110, a deduction to the extent of 890 men being of necessity made in consequence of the deficient character of the Returns from some small vessels on the North America and West Indies, West Coast of Africa, and China Stations. The full force, however, is taken in calculating the invaliding and death-rates, the returns on these points being complete. The average number of men sick daily was 2525·1 which is in the ratio of 49·5 per 1,000. In 1866 the ratio was 50·7 per 1,000. The total number invalided during the year was 1,492, being in the ratio of 29·2 per 1,000 a decrease compared with the preceding year equal to 5·1 per 1,000. The total number of deaths was 587, which is in the ratio of 11·5 per 1,000. The death-rate from disease alone was 8·4 per 1,000. Compared with the preceding year there was an increase in the total death-rate to the extent of 1·3 per 1,000; in the ratio of mortality from disease only the increase was ·5 per 1,000.

The number of cases of disease and injury per man, on the Home Station was, ·8; on the Mediterranean Station, 1·3; North America and West Indies, 1·4; South-east Coast of America, 1·3; Pacific, 1·7; West Coast of Africa, 2·2; Cape of Good Hope and East Indies, 1·7; China, 1·8; Australia, 1·6; and in the Irregular Force, 1·6, making an average of 1·2 for the Total Force, which is a reduction compared with the preceding year to the extent of ·1.

As in the previous year the lowest sick-rate was in the Home Station, and the highest on the West Coast of Africa. The

The ratio per 1,000 of men sick daily on the Home Station was 37·7; on the Mediterranean, 45·1; North America and the West Indies, 49·8; South-east Coast of America, 51·7; Pacific, 70·; West Coast of Africa, 73·3; Cape of Good Hope and East Indies, 62·2; China, 62·8; Australia, 50·9; and in the Irregular Force, 63·. The average sick-rate of the Total Force was 49·5 per 1,000, being a reduction compared with the preceding year equal to 1·2 per 1,000. Total Force.

The Stations on which there was a reduction in the ratio of invaliding compared with the previous year were the Home, Mediterranean, South-east Coast of America, China, and Australian. The ratio of invaliding on the Home Station was 19·7 per 1,000; on the Mediterranean Station, 28·9; North America and West Indies, 30·5; South-east Coast of America, 28·3; Pacific, 34·1; West Coast of Africa, 83·1; Cape of Good Hope and East Indies, 45·3; China, 51·3; Australia, 15·7; and in the Irregular Force, 26·8. The total number invalided was 1,492, which is in the ratio of 29·2 per 1,000 of force, being a reduction compared with the preceding year equal to 5·1 per 1,000.

The greatest reduction in the ratio of invaliding compared with the previous year was on the Mediterranean Station, on which it was equal to 12·7 per 1,000. The greatest increase was on the West Coast of Africa, where it was equal to 3·4 per 1,000.

Compared with the previous year there was an increase in the death-rate on the Mediterranean Station, North America and the West Indies, the South-east Coast of America, the West Coast of Africa, China, and in the Irregular Force. The greatest increase was on the China Station, on which it was to the extent of 6·6 per 1,000. The ratio of mortality on the Home Station from disease alone was, 5·8 per 1,000; and from violence, 1·6: on the Mediterranean Station, from disease, 7·7; from violence, 1·2: North America and the West Indies, from disease, 8·6; from violence, 3·5: South-east Coast of America, from disease, 10·6; from violence, 3·5: Pacific, from disease, 5·2; from violence, 3·4: West Coast of Africa, from disease, 22·8; from violence, 4·3: Cape of Good Hope and East Indies, from disease, 8·3; from violence, 5·5: China, from disease, 18·2; from violence, 7·2: Australia, from disease, 9·4; from violence, 5·2: and in the Irregular Force, from disease, 8·9; from violence, 4·3. The

Total Force. total death-rate, from disease alone, was 8·4 per 1,000; and from violence, 3·. In 1866, the death-rate from disease was 7·9; and from violence, 2·3.

The total number of deaths was 587, of which 432 were from disease, and 155 from violence. The total death-rate was 11·5 per 1,000, which is an increase compared with the preceding year equal to 1·3 per 1,000.

Compared with the preceding year there was a reduction in the death-rate on the Home Station equal to ·6 per 1,000; on the Cape of Good Hope and East Indies Station, to 7·2; and on the Australian Station, to ·5. On the Mediterranean Station there was an increase to the extent of 3·5 per 1,000; on the North American and West Indian, to 2·; South-east Coast of America, to 5·8; West Coast of Africa, to 1·; China, to 6·6; and in the Irregular Force, to 4·3. The death-rate on the Pacific Station was precisely the same in both years.

The following Table shows the ratio per 1,000 of mean force of all cases of disease and injury placed on the sick-list, and of mortality from the various classes of disease on the different stations:

CLASS OF DISEASE.	Home.		Mediterranean.		North America and West Indies.		South East Coast of America.		Pacific.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Continued and Remittent Fever	10·8	·6	60·4	2·9	156·4	·3	40·7	2·6	128·2	–
Yellow Fever - - - -	–	–	–	–	10·6	3·5	–	–	1·7	1·7
Intermittent Fever - - -	5·9	–	17·2	–	14·1	–	·8	–	30·6	–
Eruptive Fevers - - -	8·5	·1	2·5	–	·3	–	–	–	2·	–
Diseases of Brain, Nerves, &c. -	10·4	·4	16·8	·4	16·3	·1	16·8	4·4	17·4	·3
Diseases of Respiratory Organs -	184·1	2·7	206·4	2·5	217·7	2·6	210·6	·8	192·4	1·7
Diseases of Heart and Bloodvessels - - - - -	8·2	·6	6·6	·8	17·9	·7	12·3	·8	19·1	1·
Diseases of Stomach and Bowels	37·8	·3	88·7	·2	106·3	–	161·	1·7	137·9	–
Diseases of Liver, Spleen, &c. -	4·5	·2	7·2	·2	3·5	–	2·6	–	5·5	–
Diseases of Kidneys, Bladder, and Genital Organs - - -	103·5	–	75·8	–	99·6	–	80·5	–	165·4	–
Diseases of Joints, Muscles, Bones, &c. - - - - -	56·6	–	80·4	–	86·6	·1	61·9	–	113·2	–
Diseases of Senses, Eyes, Ears, &c.	14·3	–	19·1	–	16·1	–	11·5	–	16·3	–
Diseases of Skin, Glandular System, and Cellular Tissue -	224·8	–	387·5	·4	374·4	·1	355·4	–	521·9	–
Diseases not specified - -	40·5	·4	66·8	·2	69·9	·7	63·7	–	72·1	·3
Wounds, Accidents, &c. - -	166·9	1·6	302·2	1·2	271·8	3·5	353·	3·5	301·7	3·4

CLASS OF DISEASE.	West Coast of Africa.		East Indies and Cape of Good Hope.		China.		Australia.		Irregular Force.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Continued and Remittent Fever	305·2	4·3	110·1	1·8	121·8	1·3	35·7	3·1	55·	1·9
Yellow Fever - - - -	1·1	1·	–	–	–	–	–	–	–	–
Intermittent Fever - - -	27·3	·5	17·5	–	46·2	–	1·	–	7·1	–
Eruptive Fevers - - -	13·9	1·	1·3	–	56·5	3·1	2·1	–	5·1	·1
Diseases of Brain, Nerves, &c. -	25·	3·8	23·6	·9	23·1	1·8	15·7	1·	22·2	·7
Diseases of Respiratory Organs -	196·5	4·8	155·	2·7	178·4	2·7	226·3	2·1	222·2	3·1
Diseases of Heart and Bloodvessels - - - - - -	19·7	1·6	18·9	1·3	25·9	1·3	12·6	1·	15·1	1·
Diseases of Stomach and Bowels	152·9	2·7	155·	·4	221·8	5·6	132·6	1·	114·	·7
Diseases of Liver, Spleen, &c. -	6·9	–	12·	–	11·2	·8	4·2	–	17·5	·6
Diseases of Kidneys, Bladder, and Genital Organs - - -	68·	–	143·	–	195·	·2	142·1	1·	169·	·1
Diseases of Joints, Muscles, Bones, &c. - - - - - -	112·2	·5	87·	–	100·9	·2	100·	–	96·9	–
Diseases of Senses, Eyes, Ears, &c.	30·8	–	26·3	–	17·5	–	22·	–	23·6	–
Diseases of Skin, Glandular System, and Cellular Tissue -	700·5	1·	480·	–	524·	·2	412·6	–	436·2	–
Diseases not specified - -	158·1	1·	143·	·9	104·3	·5	73·6	–	99·3	·3
Wounds, Accidents, &c. - -	395·9	4·3	350·4	5·5	247·1	7·2	422·1	5·2	334·2	4·3

Fevers.—There were 3,283 cases of fever of a continued and remittent type under treatment during the year, and of these forty were invalided, and sixty-seven terminated fatally. The invaliding rate is lower than in the preceding year, but the death-rate much higher. The average duration of each case on board ship and in hospital was between thirteen and fourteen days, and 122 men were rendered daily inefficient by them. The West Coast of Africa retains its pre-eminence as the Station on which these fevers mostly abound, and the greatest mortality from them also occurred on that Station. On the Mediterranean, the South-east Coast of America, and the Australia Stations, there was a great increase in the death-rate from these diseases compared with the preceding year, the type of fever, *i. e.*, enteric, being the same on each of these stations. In the Mediterranean enteric fever is endemic in Malta during the summer and autumn months, and is also the endemic fever of most of the Mediterranean seaports. During the year 1867, the disease was chiefly contracted at Malta, and at Spezia where it was prevailing epidemically on shore. On the South-east Coast of America enteric fever may also be said to be endemic in the River Plate; and in Australia the disease was contracted at Sydney, where it prevailed on shore, and was attributed to defective sewerage. The fever which prevails on the West Coast of

Total Force. Africa is as a rule of malarious origin, and of the remittent type.

Yellow Fever.—This fatal form of fever occurred on the North American and West Indian, the Pacific, and the West Coast of Africa Stations. Of sixty-one cases altogether which were under treatment, fifty-four occurred on the first of these stations, five on the Pacific, and two on the West Coast of Africa. The proportion of deaths to cases, twenty-six to sixty-one, indicates, as was the case in the previous year, that many cases of a milder form of the disease were not returned as yellow fever, and this is admitted by the medical officers, some of whom only returned those as yellow fever which proved fatal.

Intermittent Fever.—There is a reduction in the ratio of cases of ague compared with the preceding year. China, the Pacific, and the West Coast of Africa, are the stations on which it mostly abounded. On the two former stations there was a considerable increase in the ratio of cases compared with the year 1866, but on the West Coast of Africa there was a reduction to the extent of nearly one half. In the Mediterranean ague is very common in the vessels stationed in the Danube, and frequently occurs also as a sequela of remittent fever in those who have suffered from the latter disease on the coast of Syria.

Eruptive Fevers.—There was a reduction in the total ratio of cases of these fevers compared with the preceding year equal to ·5 per 1,000, and this was chiefly attributable to the small number of cases of scarlatina that came under treatment compared with what obtained in 1866. In that year 151 cases of scarlatina were entered on the sick-list, whereas in 1867 the number was only thirty-three. During this year, however, there was a fractional increase in the ratio of cases of small-pox, and a considerable increase in that of measles. The stations which showed the largest ratio of cases of these fevers were the West Coast of Africa and China, and on both the disease was small-pox. On the former station that exanthem prevailed epidemically in the Vestal, and on the latter in the Princess Royal, besides occurring, although not to such an extent, in twelve other vessels of the squadron.

Diseases of the Brain and Nervous System.—There was a slight increase in the ratio of cases coming under this head compared

compared with the preceding year, but the invaliding and death rates were lower. There were fifteen deaths from disease of the brain, twenty from apoplexy, four from paralysis, and one from delirium tremens. The ratio of cases of the latter disease was ·3 lower than in 1866. Total Force.

Diseases of the Organs of Respiration.—There was a reduction in the ratio of cases and invaliding coming under this head compared with the preceding year, but the death-rate was higher. There were forty-one deaths from various forms of inflammatory disease of the lungs and pleura, and ninety-eight from pulmonary consumption. The stations on which these diseases prevailed most were the Mediterranean, North America and West Indies, South-east Coast of America, and Australian. They were also, as commonly happens, very prevalent in the Irregular Force. Compared with the previous year there was a considerable increase in the death-rate from these diseases on the Mediterranean and West Coast of Africa Stations. The loss to the service they occasioned by invaliding was 287 persons; and 284 persons on an average were daily rendered unserviceable by them.

Diseases of the Heart and Bloodvessels.—There was a slight increase in the ratios of cases and of mortality under this head compared with the preceding year, but the invaliding rate was lower. Six hundred and forty cases of various forms of diseases were under treatment, and of these 137 were invalided for functional and organic disease of the heart; three for hæmorrhoids; eighteen for varicose veins; and three for aneurism. Thirty-six cases of disease of the heart, and ten of aneurism, proved fatal.

Diseases of the Alimentary Canal.—There was a reduction in the ratios of cases, and of mortality under this head compared with the previous year, but the invaliding rates were precisely the same in both years. Of 163 cases of dysentery twenty-five were invalided, and twenty-three proved fatal. The death-rate from this disease was the same as in 1866. Of thirteen cases of cholera six proved fatal. Each case of dysentery was on an average between twenty-seven and twenty-eight days under treatment; each case of diarrhœa between five and six days; and each case of cholera about thirty-six days. Compared with the preceding year there was a considerable increase in the ratios of cases and of mor-

Total Force. tality from these diseases on the China Station. There was a reduction in the ratios of cases and of mortality on the East Indies and Cape of Good Hope Station; but upon the West Coast of Africa, although there was also a reduction in the ratio of cases, the death-rate was 2·7 per 1,000, whereas in 1866 these diseases caused no mortality on that station.

Diseases of the Liver and Spleen.—Compared with the preceding year there was an increase in the ratio of cases coming under this head, but the invaliding rate was lower. The death-rate was the same in both years. Of 229 cases of disease of the liver, thirty were invalided and twelve proved fatal, death being caused mostly by suppurative disease of the organ. There were two deaths from jaundice.

Diseases of the Genito-Urinary Organs.—The ratio of cases of all forms of diseases coming under this head was almost precisely the same as in the preceding year. In 1867 there was an increase to the extent of ·1 per 1,000 only. There was a considerable decrease in the ratio of invaliding occasioned by them; and they gave no death-rate. There was a reduction in the ratio of cases of primary syphilis to the extent of 2·8 per 1,000, but there was a trifling increase in the ratio of secondary syphilis. There was also a slight increase in the ratio of cases of gonorrhœa. It will be seen by the following Table that there was a decrease in the ratio of cases of syphilis on the Home, North American and West Indies, West Coast of Africa, and China Stations. In the previous year there was a great increase of syphilis on the Pacific Station, and as heretofore the greater part of the disease was contracted at Valparaiso. If ships' companies were debarred from leave at that port the pecuniary loss to the town might have the effect of inducing the authorities to institute some system of surveillance over prostitution; at present there is none. The increase in the ratio of cases of syphilis on the Australian Station was very considerable. The disease was chiefly contracted at Sydney, and in Auckland, New Zealand, at which latter place it is stated the number of the lowest class of prostitutes had greatly increased. It will be observed, that with the exception of the West Coast of Africa, where opportunities of contracting the disease hardly exist, the Mediterranean Station, where the most effective system of surveillance obtains shows the lowest ratio of syphilis; and it is especially gratifying to observe the progressive diminution of the disease at the Home ports.

Total Force.

Stations.	Syphilis.		Gonorrhœa.	
	1866.	1867.	1866.	1867.
Home	69·1	59·	20·4	22·2
Mediterranean	34·1	38·1	14·8	15·6
North America and West Indies	69·	52·4	15·4	20·
South-east Coast of America	54·1	55·6	13·3	15·
Pacific	93·2	109·6	18·3	27·8
West Coast of Africa	44·6	28·9	32·1	15·1
Cape of Good Hope and East Indies	82·6	85·1	29·1	26·3
China	129·8	124·6	26·4	30·6
Australia	38·4	59·9	15·9	28·4
Irregular Force	98·1	107·3	40·1	30·3

Two thousand six hundred and twenty-six cases of primary syphilis, 876 of secondary syphilis, and 1,163 of gonorrhœa were under treatment during the year, and of these twenty-eight of primary syphilis, forty-two of secondary syphilis, and one of gonorrhœa were invalided. Each case of primary syphilis was on an average a little over thirty-nine days under treatment; each case of secondary syphilis between thirty-three and thirty-four days, and each case of gonorrhœa between nineteen and twenty days. The average number of men sick daily from primary syphilis was 282, from secondary syphilis about eighty-one, and from gonorrhœa sixty-two; so that on an average 425 men were rendered inefficient daily by these three forms of disease.

Rheumatism.—There was a reduction in the ratio of cases and of invaliding under this head, compared with the preceding year. The Pacific and West Coast of Africa continue to maintain their pre-eminence for this form of disease. Altogether 3,527 cases of rheumatism were under treatment during the year, and of these 157 were invalided, and three proved fatal. Each case was, on an average, between seventeen and eighteen days under treatment on board ship and in hospital; and about 169 were, on an average, daily rendered inefficient by this disease. It will be observed by the following Table that, compared with the preceding year, there was a reduction in the ratio of cases of rheumatism on the Home, Mediterranean, South-east Coast of America, Pacific, West Coast of Africa, Cape of Good Hope and East

Total Force.

Indies, and the Australian Stations. On the latter station the reduction is as much as 38·4 per 1,000.

Stations.	Rheumatism.	
	1866.	1867.
Home	59·2	51·8
Mediterranean	75·3	70·4
North America and West Indies	78·2	80·7
South-east Coast of America	65·8	56·6
Pacific	107·1	102·4
West Coast of Africa	113·6	101·1
Cape of Good Hope and East Indies	85·9	81·4
China	83·3	95·
Australia	117·3	78·9
Irregular Force	102·1	86·8

Dieases of the Special Senses.—There was an increase in the ratio of cases coming under this head, compared with the preceding year, but a reduction in the invaliding rate to the extent of one-half. Twenty-five persons were invalided for various affections of the eyes. and eighteen for deafness.

Diseases of the Skin and Cellular Tissue.—There was a slight increase in the ratio of cases under this head, compared with the previous year; but the invaliding rate was lower, and there was no death-rate. In 1866 the death-rate from these diseases was ·1 per 1,000.

The average number of men sick daily from febrile diseases, including the exanthemata, was 168·9; from diseases of the brain and nervous system, 38·6; of the organs of respiration, 284·2; of the heart and bloodvessels, 42·3; of the alimentary canal, 83·7; of the liver and spleen, 18·6; of the genito-urinary organs, 503·3; from rheumatism, 168·9; gout, 4·1; diseases of the bones and joints, 20·4; of the special senses, 38·2; of the skin and cellular tissue, 608·3; from diseases not classed, 90·8; and from wounds and injuries of various kinds, 407·4. The average number of men daily under treatment, for various forms of disease and injury, was 2525·1, which is in the ratio of 49·5 per 1,000 of force, being a reduction, compared with the preceding year, equal to 1·2 per 1,000.

The

The following Table shows the ratio per 1,000 of force of cases placed on the sick-list, of invaliding and of mortality on the different stations during the year :— Total Force.

Stations.	Ratio per 1,000 of Force of Cases placed on Sick List.	Ratio per 1,000 of Force, Invalided.	Ratio per 1,000 of Force, Dead.
Home	877·3	19·7	7·4
Mediterranean	1338·3	28·9	8·9
North America and West Indies	1462·7	30·5	12·1
South-east Coast of America	1371·6	28·3	14·1
Pacific	1726·4	34·1	8·7
West Coast of Africa	2214·5	83·1	27·1
Cape of Good Hope and East Indies	1724·	45·3	13·8
China	1874·3	51·3	25·5
Australia	1603·1	15·7	14·7
Irregular Force	1618·1	26·8	13·3

The following Table shows the increase and decrease in the ratios of cases, invaliding and deaths, in 1867, as compared with the preceding year :—

	Home.	Mediterranean.	West Indies.	South-east Coast of America.	Pacific.	West Coast of Africa.	Cape.	China.	Australia.	Irregular.	Total.
					Increase.						
Cases	–	–	30·3	–	–	146·7	–	403·6	104·6	30·2	–
Invalidings	–	–	2·7		1·1	3·4	2·1	–	–	–	–
Deaths	–	3·5	2·	5·8	Equal.	1·	–	6·6	–	4·3	1·3
					Decrease.						
Cases	111·4	74·2	–	150·9	19·2	–	137·	–	–	–	15·4
Invalidings	6·4	12·7	–	7·5	–	–	–	5·4	8·7	6·6	5·1
Deaths	·6	–	–	–	Equal.	–	7·2	–	·3	–	–

Summary.—The total force in 1867 was 51,000, and the total number of men sick daily was 2525·1, which is in the ratio of 49·5 per 1,000. In 1866 the ratio was 50·7.

There were 65,045 cases of disease and injury under treatment during the year, which is in the ratio of 1298· per 1,000

160.

Total Force. 1,000, being a decrease, compared with the preceding year, equal to 15·4 per 1,000. Each case was, on an average, 14·1 days under treatment; and the total days' sickness, divided amongst the total force, gave an average of 18· days' sickness to each man. In 1866 the average was 18·5.

The total number invalided was 1,492, which is in the ratio of 29·2 per 1,000 of force, being a decrease, compared with the preceding year, equal to 5·1 per 1,000. The total number of deaths was 587, being in the ratio of 11·5 per 1,000, which exceeds the ratio of the previous year by 1·3 per 1,000. Deducting deaths by violence, the ratio of mortality was only 8·4 per 1,000.

TABLE, No. 1.

SHOWING the Number of Cases of all DISEASES and INJURIES, and the Number INVALIDED and DEAD, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Continued and Remittent Fever	3,283	65·5	40	·7	67	1·3
Yellow Fever	61	1·2	-	-	26	·5
Intermittent Fever	653	13·	11	·2	2	—
Small-pox	251	5·	-	-	14	·2
Measles	135	2·6	-	-	1	—
Scarlatina	33	·6	1	-	3	—
Vaccinia	17	·3	—	—	—	—
Varicella	13	·2	—	—	—	—
Disease of the Brain	35	·6	18	·3	15	·2
Apoplexy	24	·4	2	-	20	·3
Epilepsy	171	3·4	61	1·1	—	—
Paralysis	67	1·3	27	·5	4	—
Insanity	62	1·2	26	·5	—	—
Delirium Tremens	112	2·2	-	-	1	—
Neuralgia	166	3·3	3	—	—	—
Vertigo	131	2·6	10	·1	—	—
Insolation	20	·3	2	—	—	—
Inflammation of the Lungs and Pleura	793	15·8	43	·8	41	·8
Phthisis and Hæmoptysis	375	7·4	226	4·4	98	1·9
Influenza and Catarrh	6,633	132·3	8	·1	—	—
Cynanche	1,872	37·3	5	—	—	—
Asthma	47	·9	5	—	—	—
Mumps	72	1·4	—	—	—	—
Disease of the Heart, Functional and Organic	399	7·9	137	2·6	36	·7
Hæmorrhoids	164	3·2	3	—	—	—
Varix	61	1·2	18	·3	—	—
Aneurism	16	·3	3	-	10	·1
Disease of the Stomach and Bowels	57	1·1	4	-	7	·1
Dysentery	163	3·2	25	·4	23	·4
Diarrhœa	3,665	73·1	27	·5	6	·1
Cholera	13	·2	-	-	6	·1
Constipation and Colic	641	12·7	-	-	1	—
Colica Pictonum	11	·2	—	—	—	—
Disease of the Liver	221	4·4	29	·5	12	·2
Jaundice	135	2·6	-	-	2	—
Splenitis	8	·1	1	—	—	—

Table, No. 1.—Showing the Number of Cases of all Diseases and Injuries, &c.—*cont^d*.

DISEASE OR INJURY.	Number of Cases.	Ratio per 1,000 of Force.	Number Invalided.	Ratio per 1,000 of Force.	Number Dead.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	106	2·1	12	·2	2	—
Syphilis, Primary	2,626	52·4	28	·5	—	—
Syphilis, Secondary	876	17·4	42	·8	1	—
Gonorrhœa	1,163	23·2	1	—	—	—
Orchitis	979	19·5	14	·2	—	—
Stricture	198	3·9	9	·1	1	—
Incontinence of Urine, &c.	26	·5	9	·1	—	—
Rheumatism	3,527	70·3	157	3·	3	—
Gout	96	1·9	3	—	—	—
Disease of the Bones and Joints	260	5·1	19	·3	1	—
Inflammation of the Eyes	618	12·3	15	·2	—	—
Amaurosis and Cataract	62	1·2	10	·1	—	—
Otitis and Deafness	208	4·1	18	·3	—	—
Erysipelas	156	3·1	- -	- -	3	—
Scrofula	60	1·1	17	·3	—	—
Bubo (*Symp.*)	665	13·2	1	—	—	—
Phlegmon and Abscess	11,456	228·6	16	·3	3	—
Ulcer	4,236	84·5	62	1·2	1	—
Psora	300	7·1	—	—	—	—
Eruptions, &c.	775	15·4	15	·2	—	—
Cancer	2	- -	- -	- -	2	—
Dyspepsia and Debility	2,893	57·7	145	2·8	6	·1
Scurvy	3	- -	1	—	—	—
Dropsy	55	1·	2	- -	8	·1
Worms	114	2·2	1	—	—	—
Headache	394	7·8	8	·1	—	—
Purpura	9	·1	—	—	—	—
Gangrene	1	—	—	—	—	—
Pyœmia	2	- -	- -	- -	6	·1
Wounds and Injuries	11,836	236·5	87	1·7	55	1·
Burns and Scalds	546	10·8	—	—	—	—
Hernia	127	2·5	64	1·2	—	—
Drowned	- -	- -	- -	- -	82	1·6
Poisoning	19	·3	1	- -	4	—
Asphyxia	3	- -	- -	- -	2	—
Suicide	- -	- -	- -	- -	5	—
Not stated	- -	- -	- -	- -	4	—
Murdered	- -	- -	- -	- -	2	—
Submersion	8	·1	- -	- -	1	—
TOTAL	65,045	1298·	1,492	29·2	587	11·5

TABLE, No. 2.

SHOWING the Average Force Corrected for Time; the Number of CASES; the Number of Days' SICKNESS; with the Ratios on the different Stations.

STATION.	Average Force.	Number of Cases of Disease and Injury.	Number of Cases per Man.	Number of Days' Sickness on Board.	Average Number of Men Sick Daily on Board.	Ratio per 1,000 of Force.	Number discharged to Hospital.	Ratio per 1,000 of Force.	Number of Days' Sickness in Hospital.	Average Number of Men Daily in Hospital.	Ratio per 1,000 of Force.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Home - - -	21,600	18,951	·8	166,283	455·5	21·	2,753	127·4	131,073	359·	16·6	297,356	814·6	37·7
Mediterranean -	4,800	6,424	1·3	68,267	187·	38·9	312	65·	10,913	29·8	6·2	79,180	216·9	45·1
North America and West Indies -	5,080 5,330	7,431	1·4	83,457	228·6	45·	456	89·7	13,575	37·1	6·9	97,032	265·8	49·8
South-east Coast of America - -	1,130	1,550	1·3	19,173	52·5	46·4	24	21·2	2,206	6·	5·3	21,379	58·5	51·7
Pacific - - - -	2,870	4,955	1·7	61,422	168·2	58·6	187	65·1	11,948	32·7	11·3	73,370	201·	70·
West Coast of Africa	1,720 1,840	3,809	2·2	39,998	109·5	63·6	180	104·6	9,265	25·3	13·7	49,263	134·9	73·3
Cape of Good Hope and East Indies -	2,160	3,724	1·7	40,006	109·6	50·7	174	80·5	9,118	24·9	11·5	49,124	134·5	62·2
China - - - -	3,200 3,720	5,998	1·8	63,383	173·6	54·2	624	195·	21,989	60·2	16·1	85,372	233·8	62·8
Australia - -	950	1,523	1·6	16,543	45·3	47·6	20	21·	1,136	3·1	3·2	17,679	48·4	50·9
Irregular - -	6,600	10,680	1·6	108,225	296·5	44·9	789	119·5	43,700	119·7	18·1	151,925	416·2	63·
TOTAL - - -	50,110 51,000	65,045	1·2	666,757	1826·7	36·4	5,519	110·1	254,923	698·4	13·6	921,860	2525·1	49·5

TABLE, No. 3.

SHOWING the Number of MEN INVALIDED and DEAD from DISEASE and INJURY on the different Stations, with the Ratios per 1,000 of Force.

STATION.	Number of Men Invalided for Disease.	Ratio per 1,000 of Force.	Number of Men Invalided for Injury.	Ratio per 1,000 of Force.	Total Number Invalided.	Ratio per 1,000 of Force.	Number of Deaths from Disease.	Ratio per 1,000 of Force.	Number of Deaths from Injury.	Ratio per 1,000 of Force.	Total Number of Deaths.	Ratio per 1,000 of Force.
Home	376	17·4	50	2·3	426	19·7	126	5·8	35	1·6	161	7·4
Mediterranean	121	25·2	18	3·7	139	28·9	37	7·7	6	1·2	43	8·9
North America and West Indies	154	28·8	9	1·6	163	30·5	46	8·6	19	3·5	65	12·1
South-east Coast of America	29	25·6	3	2·6	32	28·3	12	10·6	4	3·5	16	14·1
Pacific	89	31·	9	3·1	98	34·1	15	5·2	10	3·4	25	8·7
West Coast of Africa	139	75·5	14	7·6	153	83·1	42	22·8	8	4·3	50	20·1
Cape of Good Hope and East Indies	89	41·2	9	4·1	98	45·3	18	8·3	12	5·5	30	13·8
China	179	48·1	12	3·2	191	51·3	68	18·3	27	7·2	95	25·5
Australia	15	15·7	–	–	15	15·7	9	9·4	5	5·2	14	14·7
Irregular	149	22·5	28	4·2	177	26·8	59	8·9	29	4·3	88	13·3
TOTAL	1,340	26·2	152	2·9	1,492	29·2	432	8·4	155	3·	587	11·5

TABLE, No. 4.

SHOWING the Number of DAYS' SICKNESS from each DISEASE and from INJURIES, the Average Number of Men Sick Daily, with the Ratio per 1,000 of Force.

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Continued and Remittent Fever	32,063	12,497	44,560	122·	2·3
Yellow Fever	637	1,535	2,172	5·9	·1
Intermittent Fever	5,334	714	6,048	16·5	·3
Small-pox	2,178	3,719	5,897	16·1	·3
Measles	681	1,654	2,335	6·3	·1
Scarlatina	178	338	516	1·4	—
Vaccinia	98	-	98	·2	—
Varicella	35	164	199	·5	—
Disease of the Brain	305	537	842	2·3	—
Apoplexy	83	199	282	·7	—
Epilepsy	1,679	1,287	2,966	8·1	·1
Paralysis	800	2,687	3,487	9·5	·1
Insanity	678	1,898	2,576	7·	·1
Delirium Tremens	576	436	1,012	2·7	—
Neuralgia	1,223	273	1,496	4·	—
Vertigo	706	670	1,376	3·7	—
Insolation	182	44	226	·6	—
Inflammation of the Lungs and Pleura	12,356	12,692	25,048	68·6	1·3
Phthisis and Hæmoptysis	6,614	14,135	20,749	56·8	1·1
Influenza and Catarrh	40,314	3,241	43,555	119·2	2·3
Cynanche	11,816	1,897	13,713	37·5	·7
Asthma	366	273	639	1·7	—
Mumps	153	-	153	·4	—
Disease of the Heart, Functional and Organic	6,297	5,431	11,728	32·1	·6
Hæmorrhoids	1,804	292	2,096	5·7	·1
Varix	759	471	1,230	3·3	—
Aneurism	132	325	457	1·2	—
Disease of the Stomach and Bowels	984	488	1,472	4·	—
Dysentery	2,419	2,022	4,441	12·1	·2
Diarrhœa	18,740	2,407	21,147	57·9	1·1
Cholera	431	36	467	1·2	—
Constipation and Colic	2,744	357	3,101	8·4	·1
Colica Pictonum	67	-	67	·1	—
Disease of the Liver	2,419	1,617	4,036	11·	·2
Jaundice	1,454	880	2,334	6·3	·1
Splenitis	126	349	475	1·3	—

TABLE, No. 4.—Showing the Number of Days' Sickness from each Disease, &c.—*continued.*

DISEASE OR INJURY.	Number of Days' Sickness on Board.	Number of Days' Sickness in Hospital.	Total Number of Days' Sickness.	Average Number of Men Sick Daily.	Ratio per 1,000 of Force.
Disease of the Bladder and Kidneys	1,364	1,350	2,714	7·4	·1
Syphilis, Primary	53,617	49,320	102,937	282·	5·5
Syphilis, Secondary	16,108	13,402	29,510	80·8	1·5
Gonorrhœa	18,370	4,349	22,719	62·2	1·2
Orchitis	14,224	5,536	19,760	54·1	1·
Stricture	1,819	3,862	5,681	15·5	·3
Incontinence of Urine, &c.	302	177	479	1·3	—
Rheumatism	40,306	21,363	61,669	168·9	3·3
Gout	1,026	503	1,529	4·1	—
Disease of the Bones and Joints	4,764	2,708	7,472	20·4	·4
Inflammation of the Eyes	6,850	3,373	10,223	28·	·5
Amaurosis and Cataract	815	243	1,058	2·8	—
Otitis and Deafness	1,819	896	2,715	7·4	·1
Erysipelas	1,796	1,357	3,153	8·6	·1
Scrofula	1,410	1,378	2,788	7·6	·1
Bubo (*Symp.*)	14,341	3,419	17,760	48·6	·9
Phlegmon and Abscess	96,517	9,873	106,390	291·4	5·7
Ulcer	69,252	20,267	89,519	245·2	4·8
Psora	2,179	1,216	3,395	9·3	·1
Eruptions, &c.	9,095	5,984	15,079	41·3	·7
Cancer	42	19	61	·1	—
Dyspepsia and Debility	19,902	8,366	28,268	77·4	1·5
Scurvy	23	44	67	·1	—
Dropsy	648	739	1,387	3·8	—
Worms	274	74	348	·9	—
Headache	2,421	453	2,874	7·8	·1
Pyæmia	26	-	26	--	—
Purpura	141	173	314	·8	—
Wounds and Injuries	121,986	18,023	140,009	383·5	7·5
Burns and Scalds	5,830	489	6,319	17·3	·3
Hernia	1,872	363	2,235	6·1	·1
Poisoning	140	8	148	·4	—
Gangrene	18	28	46	·1	—
Asphyxia	8	-	8	—	—
Submersion	21	3	24	—	—
TOTAL	666,757	254,923	921,680	2,525·1	49·5

TABLE, No. 5.

SHOWING the NUMBER INVALIDED on the several STATIONS.

CAUSE OF INVALIDING.	Home.	Mediteranean.	North America and West Indies.	South-east Coast of America.	Pacific.	West Coast of Africa.	Cape of Good Hope and East Indies.	China.	Australia.	Irregular.	TOTAL.
Continued and Remittent Fever	1	1	5	–	–	24	3	2	–	4	40
Intermittent Fever	1	–	1	–	–	4	–	5	–	–	11
Scarlatina	1	–	–	–	–	–	–	–	–	–	1
Inflammation of the Brain	8	–	–	–	–	2	2	3	1	2	18
Insanity	6	2	5	2	3	3	1	3	–	1	26
Apoplexy	2	–	–	–	–	–	–	–	–	–	2
Epilepsy	21	7	8	1	1	4	4	7	1	7	61
Paralysis	13	–	3	1	–	2	1	1	2	4	27
Neuralgia	1	–	1	–	1	–	–	–	–	–	3
Vertigo	6	1	–	1	–	1	–	–	–	1	10
Insolation	–	–	–	–	–	–	1	1	–	–	2
Inflammation of the Lungs and Pleura	20	1	5	3	–	1	2	4	1	6	43
Phthisis and Hæmoptysis	84	29	29	6	12	11	6	16	–	33	226
Catarrh	–	–	1	–	2	–	–	3	–	2	8
Cynanche	2	–	2	–	–	–	1	–	–	–	5
Asthma	2	–	2	–	–	–	–	1	–	–	5
Disease of the Heart, Functional and Organic	44	8	15	1	14	11	13	17	1	13	137
Aneurism	–	–	1	–	1	–	–	1	–	–	3
Hæmorrhoids	1	–	–	–	–	1	–	–	–	1	3
Varix	9	–	2	–	–	1	–	3	–	3	18
Inflammation of the Stomach and Bowels	1	–	–	–	2	–	–	–	1	–	4
Dysentery	–	–	–	2	1	4	3	15	–	–	25
Diarrhœa	2	2	2	–	1	–	5	13	1	1	27
Disease of the Liver	2	2	4	1	1	3	6	9	–	1	29
Splenitis	–	–	–	–	–	–	–	–	–	1	1
Inflammation of the Kidneys and Bladder	3	2	1	–	1	1	1	1	–	2	12
Syphilis, Primary	7	1	–	–	7	2	1	4	–	6	28
Syphilis, Secondary	10	–	10	2	3	3	6	1	–	7	42
Gonorrhœa	–	–	–	–	–	–	–	1	–	–	1
Orchitis	1	2	3	–	3	1	1	2	–	1	14
Stricture	3	–	–	1	–	1	3	–	–	1	9
Incontinence of Urine, &c.	3	1	1	1	1	–	–	–	–	2	9
Rheumatism	36	19	16	3	20	23	3	22	4	11	157
Gout	2	–	1	–	–	–	–	1	–	–	3
Diseases of the Bones and Joints	3	4	1	–	1	–	2	1	1	6	19
Inflammation of the Eyes	6	4	2	–	–	–	–	2	–	1	15
Amaurosis and Cataract	2	–	2	–	–	1	1	2	–	2	10
Otitis and Deafness	11	1	–	–	–	1	–	1	1	3	18
Scrofula	8	4	3	–	–	–	–	1	–	1	17
Bubo (*Symp.*)	–	1	–	–	–	–	–	–	–	–	1
Abscess	1	3	2	1	1	6	–	–	–	2	16
Ulcer	30	3	5	1	3	2	3	11	–	4	62
Eruptions, &c.	7	1	2	–	2	–	1	2	–	–	15
Dyspepsia and Debility	15	22	17	2	6	22	19	22	1	19	145
Scurvy	–	–	–	–	–	1	–	–	–	–	1
Headache, &c.	1	–	3	–	–	2	–	1	–	1	8
Dropsy	–	–	–	–	1	1	–	–	–	–	2
Worms	–	–	–	–	1	–	–	–	–	–	1
Wounds	27	10	5	3	4	8	7	8	–	15	87
Hernia	22	8	4	–	5	6	2	4	–	13	64
Poisoning	1	–	–	–	–	–	–	–	–	–	1
TOTAL	426	139	163	32	98	153	98	191	15	177	1,492

TABLE, No. 6.

SHOWING the Number of DEATHS on the several STATIONS.

CAUSE OF DEATH.	Home.	Mediterranean.	North America and West Indies.	South-east Coast of America.	Pacific.	West Coast of Africa.	Cape of Good Hope and East Indies.	China.	Australia.	Irregular Force.	TOTAL.	Ratio per Cent. of Deaths from Disease.	Ratio per Cent. of Deaths from Injury.	Ratio per Cent. of Deaths from all Causes.
Continued and Remittent Fever	15	14	2	3	–	8	4	5	3	13	67	15·5	–	11·4
Intermittent Fever	1	–	–	–	–	1	–	–	–	–	2	·4	–	·3
Yellow Fever	–	–	19	–	5	2	–	–	–	–	26	6·	–	4·4
Small-pox	–	–	–	–	–	2	–	11	–	1	14	3·2	–	2·3
Scarlatina	2	–	–	–	–	–	–	1	–	–	3	·6	–	·5
Measles	1	–	–	–	–	–	–	–	–	–	1	·2	–	·1
Disease of the Brain	4	–	–	3	–	4	1	1	1	1	15	3·4	–	2·5
Apoplexy	3	2	1	2	1	3	1	4	–	3	20	4·6	–	3·4
Paralysis	2	–	–	–	–	–	–	2	–	–	4	·9	–	·6
Delirium Tremens	–	–	–	–	–	–	–	–	–	1	1	·2	–	·1
Inflammation of the Lungs and Pleura	19	1	4	–	1	5	3	1	1	6	41	9·4	–	6·9
Phthisis and Hæmoptysis	40	11	10	1	4	4	3	9	1	15	98	22·6	–	16·6
Disease of the Heart, Functional and Organic	14	4	3	1	1	2	2	3	–	6	36	8·3	–	6·1
Aneurism	1	–	1	–	2	1	1	2	1	1	10	2·3	–	1·7
Inflammation of the Stomach and Bowels	5	–	–	–	–	2	–	–	–	–	7	1·6	–	1·1
Cholera	–	–	–	2	–	–	–	3	–	1	6	1·3	–	1·
Dysentery	1	–	–	–	–	3	1	15	1	2	23	5·3	–	3·9
Diarrhœa	1	1	–	–	–	–	–	2	–	2	6	1·3	–	1·
Constipation and Colic	–	–	–	–	–	–	–	1	–	–	1	·2	–	·1
Inflammation of the Liver	4	1	–	–	–	–	–	3	–	4	12	2·7	–	2·
Jaundice	2	–	–	–	–	–	–	–	–	–	2	·4	–	·3
Inflammation of the Bladder and Kidneys	1	–	–	–	–	–	–	–	–	1	2	·4	–	·3
Syphilis, Secondary	–	–	–	–	–	–	–	1	–	–	1	·2	–	·1
Stricture of the Urethra	–	–	–	–	–	–	–	–	1	–	1	·2	–	·1
Rheumatism	1	–	–	–	–	1	–	1	–	–	3	·6	–	·5
Disease of the Bones and Joints	–	–	1	–	–	–	–	–	–	–	1	·2	–	·1
Erysipelas	–	2	1	–	–	–	–	–	–	–	3	·6	–	·5
Phlegmon and Abscess	–	–	–	–	–	2	–	–	–	1	3	·6	–	·5
Ulcer	–	–	–	–	–	–	–	1	–	–	1	·2	–	·1
Cancer	2	–	–	–	–	–	–	–	–	–	2	·4	–	·3
Pyæmia	2	–	1	–	–	–	–	2	–	1	6	1·3	–	1·
Dyspepsia and Debility	–	1	1	–	1	2	1	–	–	–	6	1·3	–	1·
Dropsy	5	–	2	–	–	–	1	–	–	–	8	1·8	–	1·3
Wounds and Injuries	10	3	6	1	2	3	4	9	2	15	55	–	35·4	9·3
Poisoning	3	–	–	–	–	–	–	1	–	–	4	–	2·5	·6
Drowned	21	2	12	3	7	3	7	11	3	13	82	–	52·9	13·9
Suicide	1	1	–	–	1	1	–	1	–	–	5	–	3·2	·8
Asphyxia	–	–	–	–	–	1	–	1	–	–	2	–	1·2	·3
Not stated	–	–	1	–	–	–	1	2	–	–	4	–	2·5	·6
Murdered	–	–	–	–	–	–	–	2	–	–	2	–	1·2	·3
Submersion	–	–	–	–	–	–	–	–	–	1	1	–	·6	·1
TOTAL	161	43	65	16	25	50	30	95	14	88	587	–	–	–

INDEX

TO SHIPS AND STATIONS,

WITH

LIST OF MEDICAL OFFICERS.

1867.

N. B.—Where the Names of two or more Surgeons appear to one Ship, it is to be understood that these officers were serving in the vessel during different periods of the year; or, in some instances, that a Surgeon was borne in lieu of an Assistant Surgeon.

SHIPS.	STATIONS.	PERIOD.	NAMES OF MEDICAL OFFICERS.
Aboukir - -	West Indies -	Year - - -	J. Coogan, S.; T. Kipling, A. S.; Dr. A. Robertson, A. S.
Achilles - -	ome - -	Year - - -	G. F. A. Drew, S.; W. G Hill, Add. S.
Adventure -	China - -	Year - - -	R. Purves, Act. S.; T. Purcell, A. S.; E. W. Leet, A. S.
Alert - -	Pacific - -	Year - - -	F. W. Davis, S.; J. Shields, A. S.
Algerine -	China - -	Year - - -	Dr. T. Redfern, A. S. in *c.*
Antelope -	West Coast of Africa.	Year - - -	Dr. J. S. Levis, A. S. in *c.*; A. A. Mullin, A. S.
Arethusa -	Mediterranean -	Year - - -	J. J. Martin, S.; H. Harkan, S.; H. A. Close, A. S.; Dr. G. V. Wright, A. S.
Argus - -	China - -	1 Jan. to 30 Sept.	R. H. Carroll, S.; J. N. Stone, A. S.
	Cape - -	1 Oct. to 31 Dec.	
Asia - -	Home -	Year - - -	S. Wade, S.; J. Flanagan, S., in lieu of A. S.; Dr. J. B. Nicoll, A. S.; J. P. Way, A. S.; T. H. Knott, A. S.; W. J. Wey, A. S.
Assurance -	Mediterranean -	1 Jan. to 31 Mar. -	C. Keenan, S.
	West Coast of Africa.	1 April to 31 Dec.	
Aurora - -	West Indies -	1 Jan. to 20 Dec. -	A. Irwin, S.; P. Keelan, A. S.; Dr. J. A. Macdonald, A. S.

SHIPS.	STATIONS.	PERIOD.	NAMES OF MEDICAL OFFICERS.
Barracouta -	West Indies -	Year - - -	C. R. Godfrey, S.; T. Hamilton, A. S.
Barrosa - -	Irregular - -	1 Jan. to 30 Jan. -	R. L. B. Head, S.; J. M'K. Hollingsworth, A. S.
Basilisk - -	China - -	Year - - -	T. G. Wilson, S.; Dr. G. Monteath, A. S.
Bellerophon -	Home - -	Year - - -	N. Littleton, S.; J. F. Fitzgerald, A. S.; Dr. A. Goodall, A. S.
Black Prince -	Home - -	1 Jan. to 30 June	Dr. G. Moore, S.; R. L. B. Head, Add. S.; W. Roche, A. S.
Boscawen -	Home - -	Year - - -	H. Slade, S.; Dr. W. J. Baird, S. in lieu of A. S.; W. H. Cameron, Add. S.
Brilliant -	Home - -	Year - - -	J. A. Miller, S. S.
Brisk - -	Australia - -	Year - - -	Dr. W. D. Smyth, S.; J. Cruickshank, A. S.
Bristol - -	Irregular - -	1 Jan. to 31 Mar.	W. G. J. Ayre, S.; T. L. Bickford, A. S.; Dr. F. Buckle, A. S.
	West Coast of Africa.	1 Apr. to 31 Dec.	
Britannia -	Home - -	Year - - -	S. S. D. Wells, S. S.; J. Caldwell, S.; Dr. T. Fulton, A. S.
Britomart -	West Indies -	Year - - -	J. Mulvany, A. S. in c.
Buzzard - -	Irregular - -	20 Dec. to 31 Dec.	W. M. Power, A. S. in c.
Cadmus - -	West Indies -	Year - - -	J. Johnstone, S.; J. B. Drew, A. S.
Caledonia -	Home - -	1 Jan. to 27 May -	T. J. Breen, S.; J. G. T. Forbes, S.; E. T. Mortimer, S. in lieu of A. S.; M. Coates, A. S.; J. Buckley, A. S.; Dr. J. Pringle, A. S.
	Mediterranean -	28 May to 31 Dec.	
Cambridge - -	Home - -	26 Jan. to 31 Dec.	Dr. M. Walling, S.; J. E. Dyas, S. in lieu of A. S.; J. Fisher, S. in lieu of A. S.; S. Sweetnam, A. S.; D. W. Telford, A. S.
Cameleon - -	Irregular - -	14 May to 30 Sept.	Dr. W. J. Baird, S.; W. C. J. Holmes, A. S.
	Pacific - -	1 Oct. to 31 Dec.	
Canopus -	Home - -	Year - - -	Dr. T. Stratton, S. S.; W. Telfer, S.; W. H. Adam, S. in lieu of A. S.
Caradoc -	Mediterranean -	Year - - -	J. Bradley, A. S. in c.
Castor - -	Home - -	Year - - -	Dr. R. Hastings, S. S.
Challenger -	Australia - -	Year - - -	Dr. A. Watson, S.; Dr. I. Waugh, A. S.
Chanticleer -	Irregular - -	1 Apr. to 30 June	R. Humphrys, S.; T. Bolster, A. S.
	Pacific - -	1 Oct. to 31 Dec.	
Charybdis -	Irregular - -	7 Jan. to 30 June	Dr. J. C. Messer, S.; Dr. T. Cann, A. S.
	Australia - -	1 July to 31 Dec.	

SHIPS.	STATIONS.	PERIOD.	NAMES OF MEDICAL OFFICERS.
Clio - -	Pacific - -	Year - - -	Dr. J. Walsh, Act. S.; Dr. A. L. Archer, S.; G. V. Hart, A.S.
Cockatrice -	Mediterranean -	Year - - -	A. I. Bolton, A.S. in c.
Columbine -	Pacific - -	Year - - -	Dr. J. W. S. Meiklejohn, S.; Dr. J. Walsh, A.S.
Constance -	West Indies -	Year - - -	R. W. Beaumont, S.; M. Trevan, A.S.; J. Stewart, A.S.
Coquette -	Irregular - -	1 Jan. to 22 Jan. -	F. F. Morgan, S.
Cordelia - -	West Indies -	Year - - -	T. R. Warren, S.; Dr. A. Mitchell, A. S.
Cormorant -	China - -	Year - - -	L. Lucas, S.
Cossack - -	Irregular - -	1 Jan. to 23 Feb. -	C. E. Playfair, S.; R. Atkinson, A. S.
Crocodile -	Irregular - -	1 July to 31 Dec. -	J. Flanagan, S.; G. Curtis, A.S.
Cruiser - -	Mediterranean -	Year - - -	Dr. A. McBride, S.; W. H. Stewart, A. S.
Cumberland -	Home - -	Year - - -	L. J. Monteith, S.; J. Lilburne, S.; R. Mungle, S. in lieu of A. S.; J. Noble, A. S.; Dr. J. Horrocks, A. S.; N. T. Connolly, A. S.; G. Curtis, A. S.; W. E. Dillon, A. S.; C. C. Mitchinson, A. S.; J. Parker, A. S.
Curaçoa - -	Irregular - -	1 Jan. to 20 Feb. -	Dr. R. Picken, S.; J. Halpin, A. S.
Cygnet - -	West Indies -	1 Jan. to 13 Aug.	C. C. Mitchinson, A. S. in c.; T. Kipling, A. S. in C.
Dædalus -	Home - -	Year - - -	Dr. G. I. Willes, S.
Danae - -	Irregular - -	5 to 31 Dec. -	J. F. Mitchell, S.; J. H. Houston, A. S.
Daphne - -	Irregular - -	1 July to 30 Sept.	E. T. Mortimer, S.
	Cape of Good Hope - -	1 Oct. to 31 Dec.	
Dart - -	West Coast of Africa.	Year - - -	W. J. Inman, A. S. in c.; J. G. Milne, A. S. in c.; M. A. Harte, A. S. in c.
Dasher - -	Home - -	Year - - -	J. S. Barry, A. S. in c.
Dauntless -	Home - -	Year - - -	J. I. Acheson, S. S.; R. D. Pritchard, S.; W. J. Thomason, A. S.; Dr. Gorham, A. S.

SHIPS.	STATIONS.	PERIOD.	NAMES OF MEDICAL OFFICERS.
Dee - -	Home - -	Year - - -	J. M Hunter, A. S. in c.; G. Bolster, A. S. in c.
Donegal -	Home - -	Year - - -	A. Adams, S. S.; C. F. A. Courtney, S.; W. Edney, S. in lieu of A. S.; Dr. W. Yarde, A. S.
Doris - -	West Indies -	Year - - -	Dr. H. Arnot, S.; J. E. Dyas, S.; C. J. Fennell, A. S.; T. Conry, A. S.
Doterel - -	South-east Coast of America.	10 June to 31 Dec.	T. Colahan, A. S. in c.; A. B. Johnson, A. S. in c.
Dromedary -	West Coast of Africa.	Year - - -	H. Macdonnell, A. S. in c.
Dryad - -	Irregular - -	7 May to 31 Dec.	Dr. D. O'Connor, S.
Duke of Wellington.	Home - -	Year - - -	W. T. Wilson, S.; J. Halpin, A. S.; J. Robertson, A. S.
Duncan - -	West Indies -	1 Jan. to 14 June	J. Thomson, S. S.; Dr. D. M'Ewan, S. in lieu of A. S.; J. Little, S.; T. T. Riordan, A. S; A. G. Bain, A. S.
	Home - -	16 June to 31 Dec.	
Durham (late Active).	Home - -	Year - - -	T. Somerville, S. S.
Eagle - -	Home - -	Year - - -	J. Bernard, S. S.
Eclipse - -	Irregular - -	1 Jan. to 9 Feb. -	Dr. S. A. Willis, S.
Egmont - -	South-east Coast of America.	Year - - -	J. C. Ingles, S.; T. N. W. Colahan, A. S.; J. Bishop, A. S.
Endymion -	Mediterranean -	Year - - -	W. E. O'Brien, S.; J. Trimble, A. S.
Enterprise -	Mediterranean -	Year - - -	J. Thomson, S.
Esk - -	Australia -	1 Jan. to 30 June	Dr. G. Duncan, S.; Dr. F. N. Manning, A. S.
	Irregular - -	1 July to 17 Oct.	
Espoir - -	West Coast of Africa.	1 Jan. to 30 Sept.	John Lambert, A. S. in c.
	Irregular - -	1 Oct. to 24 Dec.	
Euphrates -	Cape of Good Hope.	1 July to 31 Dec.	Dr. S. A. Willis, S.; R. B. O'Toole, A. S.
Excellent -	Home - -	Year - - -	Dr. G. Yeo, S. S.; Dr. S. Bowden, S. S.; Dr. J. Henderson, S. S.; Dr. S. A. Willis, S. in lieu of A. S.; Dr. E. Waller, S. in lieu of A. S.; Dr. G. B. Beale, A. S.; G. R. Lawrenson, A. S.
Falcon - -	Australia - -	Year - - -	P. W. Rolston, S.; I. Waugh, A. S.
Favorite -	West Indies - -	Year - - -	J. R. Anderson, S.; A. Scott, A. S.

SHIPS.	STATIONS.	PERIOD.	NAMES OF MEDICAL OFFICERS.
Fawn	West Indies	Year	C. Morton, S.; W. Jones, A. S.; W. P. M. Boyle, A. S.
Ferret	Home	Year	E. B. Broster, A. S. in c.
Fisgard	Home	Year	Dr. C. K. Ord, S. S.; J. Hudson, Add. S. in lieu of A. S.
Flora	West Coast of Africa.	Year	A. S. Pratt, S.
Formidable	Home	Year	Dr. R. Irvine, S.; T. W. Hughes, A. S.
Fox	Home	Year	J. J. Ellis, A. S. in c.
Frederick William.	Home	Year	C. D. Shephard, S.; R. Humphrys, S., in lieu of A. S.; Dr. G. B. Moore, S., in lieu of A. S.
Galatea	Irregular	22 Jan. to 31 Dec.	Dr. J. Young, S.; W. L. Powell, A. S.; W. H. Symes, A. S.
Ganges	Home	Year	Dr. J. T. Caddy, S.; F. Mc Aree, S., in lieu of A. S.
Gannet	West Indies	Year	Dr. G. V. Macdonogh, S.
Gibraltar	Irregular	1 Jan. to 12 Jan.	C. McShane, S. S.; Dr. M. Rodgers, A. S.; Dr. W. Reid, A. S.
Gladiator	Home	Year	W. J. Eames, S.; P. Burgess, A. S.; E. W. Doyle, A. S.
Gleaner	South East Coast of America.	Year	H. S. Lauder, A. S. in c.
Greyhound	West Coast of Africa.	Year	A. Collins, S.; J. G. Milne, A. S.
Hector	Home	1 Jan. to 19 Mar.	Dr. J. Henry, S.; W. Anderson (*b*), A. S.; R. F. Bridgford, A. S.
Helicon	Home	Year	J. McK. Hollingsworth, A. S. in c.
Hesper	China	1 Jan. to 30 June	A. Brend, A. S. in c.
	Irregular	1 July to 14 Sept.	
Hibernia	Mediterranean	Year	F. Negus, S. S.; E. J. Butler, A. S.; H. A. Close, A. S.
Highflyer	Cape	Year	Dr. A. G. Robertson, Act. S.
Himalaya	Irregular	20 Feb. to 31 Dec.	Dr. T. B. Purchas, S.; B. H. McCurdy, A. S.
Hydra	Mediterranean	1 Jan. to 30 Sept.	O. J. Llewellyn, S.; Dr. C. A. Lees, S.
	Irregular	1 Oct. to 31 Dec.	
Icarus	China	Year	J. W. Dobbin, S.; Dr. H. Maxwell, S.; R. J. Mc Morris, S.; E. A. Hudson, A. S.

SHIPS.	STATIONS.	PERIOD.	NAMES OF MEDICAL OFFICERS.
Implacable -	Home - -	Year - - -	Dr. W. B. Dalby, S.; Dr. J. Whitaker, A. S.
Impregnable -	Home - -	Year - - -	W. B. Fegen, S. S.; R. B. O'Toole, A. S.; Dr. H. N. Maclaurin, A. S.; W M. Power, A. S.; R. S. P. Griffiths, A. S.
Indus - -	Home - -	Year - - -	A. W. W. Babington, S. S.; Dr. H. H. Smith, S. in lieu of A. S.; G. A. Campbell, A. S.
Industry -	Irregular - -	Year - - -	W. Redmond, A. S. in c.
Insolent - -	China - -	Year - - -	G. Clark, A. S. in c.
Investigator -	West Coast of Africa.	Year - - -	Dr. J. E. Saunderson, A. S. in c.
Irresistible -	Home - -	Year - - -	Dr. J. Andrews, (b) S.; R. C. Scott, S.; Dr. D. Mc N. Johnston, A. S.; M. P. S. Ward, S. in lieu of A. S.
Jackal - -	Home - -	Year - - -	C. H. Slaughter, A. S. and S.
Jaseur - -	Irregular - -	1 Jan. to 13 Feb. - 24 Aug. to 30 Sept.	Dr. P. W. Wallace, S.; Dr. J. R. Burke, A. S.
	West Coast of Africa.	1 Oct. to 31 Dec.	
Jason - -	West Indies -	Year - - -	Dr. W. H. Lloyd, S.; J. L. Whitney, A. S.
Jumna - -	Irregular - -	10 June to 30 Sept.	Dr. L. H. J. Hayne, S.; Dr. G. B. Beale, A. S.
	Cape of Good Hope.	1 Oct. to 31 Dec.	
Landrail - -	West Coast of Africa.	Year - - -	Dr. T. A. O'Flaherty, A. S. in c.
Lee - -	Irregular - -	13 July to 30 Sept.	S. McBean, A. S. in c.
	West Coast of Africa.	1 Oct. to 31 Dec.	
Leven - -	China - -	27 May to 31 Dec.	H. D. Stanistreet, A. S. in c.
Liberty - -	Home - -	Year - - -	S. McBean, A. S. in c.; S. Sweetnam, A. S. in c.
Liffey - -	Home - -	9 Aug. to 31 Dec.	Dr. F. W. Blake, S.; G. H. Madeley, A. S.
Linnet - -	South-east Coast of America.	Year - - -	Dr. A. McDonald, A. S. in c.
Lion - -	Home - -	Year - - -	Dr. G. Mason, S.; B. Gregory, A. S.; Dr. J. T. Comerford, A. S.
Liverpool -	Home - -	1 Jan. to 10 Aug.	H. M. Speer, S. S.; E. H. Evans, S. in lieu of A. S.; J. Hide, A. S.

SHIPS.	STATIONS.	PERIOD.	NAMES OF MEDICAL OFFICERS.
Lizard	Home	Year	G. Mair, A. S. in c.; W. Harvey, A. S. in c.; W. J Thomason, A. S. in c.
Lord Clyde	Home Irregular	1 Jan. to 30 Sept. 1 Oct. to 31 Dec.	Dr. H. Gimlett, S.; S. Clift, S.; A. G. Colquhoun, A. S.
Lord Warden	Irregular	10 Aug. to 31 Dec.	Dr. H. Trevan, S. S.; E. H. Evans, S. in lieu of A. S.
Lyra	Cape of Good Hope.	Year	R. Edwardes, S.
Malabar	Irregular Cape of Good Hope.	1 July to 30 Sept. 1 Oct. to 31 Dec.	Dr. T. Colan, S.; R. L. Bett, A. S.
Malacca	Pacific	Year	W. H. Cruice, S.; S. Bamfield, A. S.
Manilla	China	Year	R. J. McMorris, A. S. in c.; C. J. Wodsworth, A. S. in c.
Marines, Falkland.	South-east Coast of America.	Year	W. F. MacClinton, S.
Marines, Ireland.	Home	11 Mar. to 7 June	W. H. Clarke, S.; J. Caldwell, S.; Dr. H. N. Mac Laurin, A. S.
Marines, San Juan.	Pacific	Year	I. Hanbury, A. S. in c.
Marines, Somerset.	Australia	1 Jan. to 30 Sept.	T. J. Haran, S.
Martin	Home	Year	C. F. Williams, A. S. in c.; T. H. Atkinson, A. S. in c.
Medusa	Home	Year	Dr. J. R. Burke, A. S. in c.; Dr. G. V. Wright, A. S. in c.; J. P. Way, A. S. in c.
Megæra	Irregular	Year	T. McCarthy, S.; R. G. Bird, A. S.
Mersey	Home	25 July to 31 Dec.	Dr. G. Moore, S.; R. L. B. Head, S. in lieu of A. S.
Minotaur	Home	14 April to 31 Dec.	Dr. H. Gimlett, S.; R. R. Siccama, A. S.; Dr. J. B. Nicoll, A. S.; C. Strickland, A. S.
Mullet	West Coast of Africa.	Year	Dr. T. Milne, A. S. in c.; C. McConaghy, A. S. in c.
Mutine	Pacific	Year	Dr. J. Martin, S.; Dr. W. Grant, A. S.
Myrmidon	Irregular	30 Oct. to 31 Dec.	Dr. W. Connolly, S.
Nankin	Home	1 July to 31 Dec.	T. R. Pickthorn, S. S.
Narcissus	South-east Coast of America.	Year	J. Elliott, S. S.; Dr. F. W. Blake, S.; J. S. Dobbyn, A. S.; J. H. Martin, A. S.

SHIPS.	STATIONS.	PERIOD.	NAMES OF MEDICAL OFFICERS.
Nassau	South-east Coast of America.	Year	Dr. S. Campbell, A. S. in c.
Nelson	Irregular	26 Aug. to 31 Dec.	Dr. H. N. Maclaurin, A. S. in c.
Nereus	Pacific	Year	W. E. Dillon, A. S. in c.; G. Mair, A. S. in c.
Niger	West Indies	Year	Dr. C. A. Ducket, S.; Dr. J. D. Smith, A. S.
Nimble	West Indies	Year	F. F. Flynn, A. S. in c.
Niobe	Home	3 Mar. to 30 June	W. F. C. Bartlett, S.
	West Indies	1 July to 31 Dec.	
Nymphe	Irregular	1 July to 30 Sept.	J. Noble, S.
	Cape of Good Hope.	1 Oct. to 31 Dec.	
Oberon	West Coast of Africa.	Year	A. Hogg, A. S. in c.; C. Strickland, A. S. in c.; A. A. Mullin, A. S. in c.
Ocean	Mediterranean	1 Jan. to 30 June	J. Rorie, S.; J. May, A. S.; Dr. S. Davidson, A. S.; S. Kellett, A. S.
	Irregular	1 July to 31 Dec.	
Octavia	Cape of Good Hope.	Year	D. M. Shaw, S.; C. J. Devonshire, A. S.; H. N. M. Sedgwick, A. S.
Orontes	Irregular	Year	J. C. Sabben, S. S.; J. F. Kynsey, A. S.; Dr. G. V. Wright, A. S.
Orwell	Home	20 July to 31 Dec.	Dr. W. Reid, A. S. in c.
Osborne	Home	Year	G. B. Hill, S. S.
Osprey	China	1 Jan. to 31 Mar.	G. H. Maunsell, Act. S.
Pallas	Home	Year	R. Creighton, S.; E. Mulcahy, A. S.; A. G. Colquhoun, A. S.
Pandora	Irregular	1 Jan. to 21 Feb.	G. E. Farr, A. S. in c.
Pantaloon	Irregular	1 Jan. to 6 Mar.	J. F. Mitchell, S.; G. Maclean, A. S.
Pearl	China	Year	J. T. Gabriel, S.; E. V. de Meric, A. S.
Pelorus	China	Year	Dr. A. M'Kenna, S.; Dr. R. Hay, A. S.
Pembroke	Home	Year	Dr. T. Seccombe, S.; Dr. D. O'Connor, A. S.; Dr. J. Paterson, A. S.
Penguin	Cape	Year	C. J. Devonshire, A. S. in c.; W. Graham, A. S. in c.
Perseus	China	Year	Dr. A. B. Messer, S.; Dr. J. Craw, A. S.
Peterel	Cape	Year	J. N. J. O'Malley, S.
Phœbe	Irregular	6 May to 30 Sept.	Dr. W. J. Hamilton, S.; J. Ward, S.; Dr. D. McN. Johnston, A. S.; Dr. F. M'Clement, A. S.
	West Indies	1 Oct. to 31 Dec.	

SHIPS.	STATIONS.	PERIOD.	NAMES OF MEDICAL OFFICERS.
Pioneer - -	West Coast of Africa.	Year - - -	C. Strickland, A. S. in c.; Dr. J. S. Levis, A. S. in c.
Plover - -	Irregular - -	4 Oct. to 31 Dec. -	J. G. Clarke, A. S. in c.; V. Duke, A. S. in c.
President -	Home - -	Year - - -	W. N. Brake, S. S.
Prince Consort	Mediterranean -	Year - - -	Dr. S. Bowden, S.; R. Atkinson, A. S.; Dr. R. Potter, A. S.
Princess Charlotte.	China - -	Year - - -	Dr. C. C. Wimberley, A. S. in c.; R. Nelson, A. S. in c.
Princess Royal	China - -	1 Jan. to 31 Mar.	F. Y. Toms, S.; Dr. A. Goodall, A. S.; E. W. Doyle, A. S.
	Irregular - -	1 Apr. to 14 Aug.	
Psyche - -	Mediterranean -	Year - - -	Dr. T. Warden, A. S. in c.
Pylades - -	Irregular - -	5 to 31 Dec. -	J. Fisher, S.; G. G. Bothwell, A. S.
Racer - -	Mediterranean -	Year - - -	W. Roche, (b) S.; Dr. T. D'A. Bromlow, A. S.
Racoon - -	Irregular - -	1 Jan. to 30 June	Dr. P. Mansfield, S.; J. Wilson, A. S.
	Cape of Good Hope.	1 July to 31 Dec.	
Ranger - -	West Coast of Africa.	Year - - -	W. D. Wodsworth, A. S. in c.
Rapid - -	Irregular - -	1 to 24 Jan. -	D. G. Pendrith, S.; W. Harvey, A. S.
Rattler - -	China - -	Year - - -	A. Mullan, S.; Dr. R. Hague, S.; A. W. Whitley, A. S.
Rattlesnake -	West Coast of Africa.	3 Oct. to 31 Dec. -	J. S. Adams, S.; J. M. Hunter, A. S.
Reindeer -	Pacific - -	Year - - -	J. C. Eastcott, S.; Dr. E. Dann, A. S.
Rescue - -	West Indies -	1 Apr. to 30 Oct. -	J. Mulvany, A. S. in c.
Research -	Home - -	Year - - -	Dr. T. Coghlan, S.; Dr. P. W. Wallace, S.; W. B. Fletcher, A. S.
Resistance -	Mediterranean -	1 Jan. to 13 June	R. C. Scott, S.; D. R. Alcock, A. S.; Dr. G. V. Wright, A. S.
Revenge -	Home - -	Year - - -	Dr. A. Brown, S. S.
Rifleman -	China - -	Year - - -	J. A. Gaven, A. S. in c.
Rinaldo - -	Irregular - -	1 Jan. to 31 Mar.	W. G. Ridings, S.; R. Beamish, A. S.
	China - -	1 Apr. to 31 Dec.	
Rodney - -	Irregular - -	29 Jan. to 30 Sept.	Dr. C. Forbes, S. S.; Dr. H. Fegan, S. in lieu of A. S.; G. B. Newton, S.; B. Gregory, A. S.
	China - -	1 Oct. to 31 Dec.	

SHIPS.	STATIONS.	PERIOD.	NAMES OF MEDICAL OFFICERS.
Rosario	Irregular	1 Oct. to 31 Dec.	T. Roche, S.
Royal Adelaide	Home	Year	W. R. Dalton, S. S.; A. Adams, S. S.; Dr. D. Finucane, S., in lieu of A. S.
Royal Alfred	Irregular West Indies	14 Jan. to 30 June 1 July to 31 Dec.	Dr. D. L. Morgan, S. S.; R. C. P. Lawrenson, A. S.; J. Rodgers, A. S.
Royal George	Home	Year	Dr. H. Trevan, S. S.; H. Loney, S.; Dr. A. J. Ireland, A. S.
Royal Oak	Mediterranean	1 Jan. to 13 Dec.	J. Jack, S.; Dr. E. J. Sharood, A. S.; Dr. H. C. Woods, A. S.
Royalist	West Indies	1 Jan. to 12 April	J. Fisher, S.; J. P. Way, A. S.
St. George	Home	Year	Dr. P. Digan, S.; A. A. Mullin, A. S.; Dr. T. Fulton, A. S.
St. Vincent	Home	Year	J. Cockin, S. S.; Dr. W. Hoggan, S. S.; C. F. Williams, A. S.; Dr. T. Browne, A. S.; W. J. Morier, A. S.
Salamander	Australia Irregular	1 Jan. to 30 Sept. 1 Oct. to 31 Dec.	Dr. A. Rattray, S.; R. Cannon, A. S.
Salamis	China	Year	J. Frazer, A. S. in c.
Satellite	China Cape of Good Hope.	1 Jan. to 30 Sept. 1 Oct. to 31 Dec.	J. N. Dick, S.; E. Meade, A. S.
Saturn	Home	1 Jan. to 30 June	T. R. Pickthorn, S. S.
Scout	Pacific	Year	J. Sproule, S.; Dr. W. Carmichael, A. S. and S.
Scylla	China Irregular	1 Jan. to 31 Mar. 1 April to 6 Aug.	W. Edney, S.; T. Purcell, A. S.
Sealark	Home	Year	J. F. Parr, A. S. in c.
Serapis	Irregular	1 July to 31 Dec.	Dr. J. Breakey, S.; A. G. Bain, A. S.
Seringapatam	Cape of Good Hope.	Year	E. Olive, A. S. in c.
Serpent	China	Year	T. H. Taylor, S.
Sharpshooter	South East Coast of America.	Year	G. W. L. Harrison, A. S. in c.
Shearwater	Pacific Irregular	1 Jan. to 30 Sept. 1 Oct. to 31 Dec.	T. S. Burnett, Act. S.; Dr. A. Yule, A. S.
Simoom	Irregular	Year	C. Sproull, S.; Dr. E. L. Moss, A. S.

SHIPS.	STATIONS.	PERIOD.	NAMES OF MEDICAL OFFICERS.
Slaney	China	Year	W. M. Power, A. S. in c.; W. F. Ryall, A. S. in c.
Snipe	West Coast of Africa.	1 Jan. to 18 July	Dr. E. W. Coleman, A. S. in c.
Sparrowhawk	Pacific	Year	P. Comrie, S.
Speedwell	Irregular	1 Jan. to 16 Feb. 13 Aug. to 30 Sept.	G. Curtis, A. S. in c.; W. B. Fletcher, A. S. in c.
	West Coast of Africa.	1 Oct. to 31 Dec.	
Sphinx	West Indies	Year	Dr. J. L. Sands, S; Dr. W. J. Rankin, A. S.
Spider	South-east Coast of America.	1 Jan. to 12 Sept.	A. B. Johnson, A. S. in c.; Dr. A. M'Donald, A. S. in c.
Spiteful	South-east Coast of America.	1 Jan. to 30 Sept.	Dr. D. Hilston, S.; W. D. Longfield, A. S.
	Irregular	1 Oct. to 31 Dec.	
Squirrel	Home	Year	Dr. T. Cann, A. S. in c.; W. Anderson, (b) A. S. in c.
Star	Cape of Good Hope.	Year	Dr. W. R. Bennett, S.
Steady	West Indies	Year	T. Conry, A. S. in C.
Supply	Irregular	Year	Dr. W. M'Mahon, A. S. in c.
Sutlej	Pacific	1 Jan. to 31 Mar.	W. Patrick, S.; T. H. Atkinson, A. S.; Dr. T. Browne, A. S.
	Irregular	1 Apr. to 1 Aug.	
Sylvia	Irregular	1 Jan. to 30 June	J. Murphy, S.; F. H. Moore, S.
	China	1 July to 31 Dec.	
Tamar	Irregular	Year	Dr. J. Long, S.; J. Allen, A. S.
Terrible	Irregular	Year	Dr. W. Fasken, S. S.; J. A. Hatch, A. S.
Topaze	Pacific	Year	J. L. Palmer, S.; Dr. T. Jameson, A. S.; C. B. Greenfield, A. S.
Torch	West Coast of Africa.	1 Jan. to - Oct.	J. Donovan, A. S. in c.
Trafalgar	Home	1 Jan. to 15 June 20 Nov. to 31 Dec.	Dr. J. Thomson, (c) S. S.; Dr. D. M'Ewan, S. in lieu of A. S.
Trincomalee	Home	Year	J. I. Crawford, S. S.
Trinculo	Mediterranean	1 July to 31 Dec.	Dr. W. Yarde, A. S. in c.
Triton	South-east Coast of America.	1 Jan. to 25 July	G. Bolster, A. S. in c.; A. B. Johnson, A. S. in c.; T. N. W. Colahan, A. S. in c.
Tyrian	Mediterranean	Year	Dr. H. C. Woods, A. S. in c.; Dr. D. MacIver, A. S. in c. Dr. W. Inman, A. S. in c.

SHIPS.	STATIONS.	PERIOD.	NAMES OF MEDICAL OFFICERS.
Urgent - -	Irregular - -	Year - - -	Dr. F. H. Blaxall, S; G. Kell, A. S.; R. Nelson, A. S.
Valorous -	Cape - -	1 Jan. to 30 June	S. Grose, Act. S; J. G. Clarke, A. S.
	Irregular - -	1 July to 13 Sept.	
Vestal - -	Irregular - -	26 Jan. to 30 June	G. W. J. Sutherland, S.
	West Coast of Africa.	1 July to 31 Dec.	
Victoria - -	Mediterranean -	1 Jan. to 7 Aug. -	J. G. T. Forbes, S.; J. A. Skene, S. in lieu of A. S.; T. J. Breen, S.; Dr. J. Pringle, A. S.
Victoria and Albert.	Home - -	Year - - -	Dr. J. M. Minter, D. I. G.
Victory - -	Home - -	Year - - -	Dr. J. W. Reid, S. S.; F. M. Rayner, S. S.; B. Browning, S. Add.; Dr. W. Reid, A. S.
Vigilant - -	Cape - -	Year - - -	G. Jackson, S.
Vindictive -	West Coast of Africa.	Year - - -	J. Mockridge, A. S. in c.
Viper - -	Home - -	4 July to 31 Dec.	J. Halpin, A. S. in c.
Virago - -	Home - -	1 Jan. to 30 June	E. H. Evans, S.; Dr. A. Crosbie, S.; M. O. Hurlstone, A. S.
	Irregular - -	1 July to 31 Dec.	
Vixen - -	Home - -	1 to 25 Jan. -	Dr. A. Robertson, A. S. in c.
Warrior - -	Home - -	1 July to 31 Dec.	Dr. G. Moore, S.; J. C. Walsh, S. S.; Dr. W. J. Hamilton, Add. S.; R. L. B. Head, Add. S.
Wasp - -	Cape of Good Hope.	Year - - -	W. Anderson (a) S.; Dr. J. A. Allan, A. S.
Waterwitch -	Home - -	1 July to 31 Dec.	D. McCarthy, A. S. in c.
Wellesley -	Home - -	Year - - -	H. Piers, S. S.; G. Maclean, A. S.
Winchester -	Home - -	Year - - -	Dr. W. Ross, S.
Wivern - -	Home - -	Year - - -	F. Piercy, S.
Wizard - -	Mediterranean -	Year - - -	Dr. W. Inman, A. S. in c.; Dr. D. MacIver, A. S. in c.
Wolverene -	West Indies -	Year - - -	D. Wilson, S.; S. Terry, A. S.
Zealous - -	Pacific - -	Year - - -	Dr. M. Burton, S. S.; Dr. J. Simpson, A. S.; A. S. Crowdy, A. S.
Zebra - -	Irregular - -	7 March to 30 June	J. W. Leahy, S.; C. L. Ridout, A. S.
	China - -	1 July to 31 Dec.	

Appendix, No. 1.

LONDON CONSIDERED AS A SOURCE OF BOYS FOR THE ROYAL NAVY;

Giving a Detail of the Results of the Examinations of nearly Six Thousand such Boys in the Fisgard, Flag-ship at Woolwich:

With an Inquiry into the General, Medical, and Physical Condition of this Section of the Lower Classes in the Metropolis.

By C. K. Ord, M.D., F.L.S., Staff-Surgeon H.M.S. Fisgard.

Certain of Her Majesty's ships are specially charged with the duty of entering boys for the Royal Navy. Among them is the stationary flag-ship in the Thames, which is the nearest rendezvous for candidates from the London district. The fitness of such candidates for the service is tested by examinations, which have been held for some years at this office in the Royal Dockyard at Woolwich. I propose, however, in the present observations, to restrict myself entirely to a consideration of those boys who appeared during the two years which immediately succeeded my present appointment to this flag-ship as senior medical officer; viz., between 4th July 1866 and 30th June 1868.

The *general results* may be briefly stated at the outset. Out of the total 5,567 candidates who appeared during these two years, 4,410 were dismissed as ineligible for the service, and the remaining 1,157 eventually entered the Navy. Out of 1,000 candidates, this was equivalent to a ratio of 792 rejected, against 208 who were accepted. Or, more familiarly, the rejections bore to the entries the ratio of 4 to 1. In other words, no fewer than five candidates were required to supply a single recruit. So startling a disparity between the numbers dismissed and retained will be satisfactorily explained hereafter. In the meantime, some necessary information will be gained, and much explanation saved, by a perusal of what

 were

App. No. 1. were then the standing "Regulations under which boys are entered in Her Majesty's Navy."

All boys who enter the Navy must understand that they are bound to serve continuously for ten years from the time of their attaining the age of eighteen; and they will be required to sign an engagement to that effect; but no boy will be entered without the written consent of his parents, guardians, or nearest relations.

The age for entry is from 14½ to 16.

	Height (without Shoes).	Measurement round the Chest.
Boys between 14½ and 15 - -	4 ft. 8½ in. - -	27½ in.
„ 15 and 16 - -	4 ft 10½ in. - -	29½ in.

and they must produce a certificate of birth, or a declaration made by their parents or guardians before a magistrate, to show they are of the proper age, or they will not be entered.

They must also be of sound constitution, not subject to fits, free from any physical defects or malformation, and be able to read and write.

No boys will be received from reformatories or prisons, or if they have been committed by a magistrate.

Candidates will be received in any of the flag-ships or training ships at Portsmouth, Devonport, Sheerness, Chatham, and Woolwich, or in any of the district coast-guard ships, whenever there are vacancies; but they must proceed to the ports at their own expense, and, if rejected, return to their homes at their own expense.

Note.—Boys may also apply to the recruiting officers of Marines at any station, except the London district, and to the officers of the Coast Guard, who will forward them, if fit for entry, to the training ships for approval.—28th March 1866.

From the paragraphs of this circular, and from their several clauses, it will be seen that, in view of their future career, it was deemed essential that these boys should possess and combine very numerous qualifications; these qualifications, however, were irrelevant to medical fitness, except so far as concerned the candidate being "of sound constitution, not subject to fits, and free from any physical defects or malformation." This will be amply confirmed in the sequel, on a comparison of the total numbers rejected as unfit "medically" or "non-medically," when it will be found that the ratio of the latter was more than fourfold.

Here, too, it must be carefully noted, that these boys were *entered for a specific purpose*, viz., first to be *trained*, and then to *serve* for a continuous period, as *bonâ fide* seamen. 1. They were not intended for any of the non-combatant classes of stokers, artificers, police, domestics or the like, but solely to develope into pure seamen, and to fill hereafter vacancies in the various ratings of such combatants. Accordingly, shortly after being entered in the Fisgard, they were transferred for training purposes to one of the five training ships devoted to this object. 2. Every boy who entered was bound to serve, on an average, for 13 years reckoned from the date of his entry, when he signed, what is called, his "Continuous Service Engagement." Among other items, this document contained a joint certificate from the two captains and the two medical officers who examined each lad, to the effect that—"He is a well-grown stout lad, of perfectly sound and healthy constitution, free from all physical malformation, and intelligent, and we consider him in all respects fit for Her Majesty's service."

Although

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Although the qualifications demanded were very numerous, they divided themselves naturally into two distinct groups; hence arose the necessity for two separate *examinations*, which are best distinguished as "General" and "Medical." 1. Nothing requires to be explained regarding the latter or *medical examination*, except (*a*) that it followed the former examination, and (*b*) that no candidate was submitted for it, unless he had been previously approved otherwise. 2. The *general examination*, which was preliminary to the medical, was conducted by officers of the Executive department, who determined whether each candidate was eligible as to (1) age, (2) growth, (3) education, (4) character, &c., and in this order. Moreover, after having passed both examinations successfully, no boy could be entered unless he proved his age, and the consent of his friends, by certain documents, which, according to the circular, were indispensable.

Further, the results of these examinations, and other details, were entered either in a "Nominal Register," or in a "Numerical Record," which were devoted respectively to boys who were or who were not examined medically. 1. The total number of boys who, being found unfit by the executive officers, were *dismissed without medical examination*, were entered daily in the "Numerical Record," under their respective defaulting causes of Age, Growth, Education, &c.—*Nothing further is known regarding such Candidates.* 2. It was different with regard to those who were examined medically, and who were, therefore, entered in the "Nominal Register." Very complete information was recorded against each candidate's name as to his (1.) Date of Examination; (2.) Age; measurements of, (3.) Height; (4.) Weight, and (5.) Chest; (6.) Trade; (7.) Place of Birth; (8.) Vaccination; (9.) Medical fitness or unfitness, with the cause in the latter instance; and, (10.) Miscellaneous Remarks, including "where educated" in the case of those who eventually entered.

Finally, it was a peculiar and important feature in these examinations, that, with the exception of one warrant officer, *the staff of examiners, executive as well as medical, was permanent and never changed.* The medical staff consisted of myself and a surgeon of the Navy.

After these remarks and explanations, some of which were necessary for the information of persons who were not conversant with the routine of the naval service, I am able, from the records in this office, to which I have just alluded, to furnish certain details, and to determine certain points, regarding such candidates for the Navy from the London district. These I proceed to consider under the four following heads:—

First. Their eligibility for the naval service.

Second. Their general history.

Third. Their physical development; and

Fourth. Their medical fitness.

These different heads will embrace the following subjects respectively:—

First. The various causes of unfitness, and the disposal of the candidates.

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Second. The number of candidates, their social condition, and their education.

Third. Their height, weight, &c., both absolutely and compared with others.

Fourth. Their medical condition, and the causes of their unfitness actually and compared with army recruits; and their Vaccination.

First.—Eligibility for the Navy.

Causes of Unfitness.

The various *causes of rejection*, with the number and ratio per 1,000 rejected under each head, were as under:—

	Number.	Per 1,000.
Under the prescribed age	367	66
Over „ „	636	114
Under standard of height	674	121
„ „ chest	823	148
Unable to read	494	89
„ write	169	30
Obviously defective sight	61	11
Committed by a magistrate	1	4
Been in reformatories	2	
Otherwise ineligible	3	
Absent from medical examination	19	
Did not return with the necessary documents	416	75
Medically unfit	745	134
Total unfit	4,410	792

Age.—Age formed the first and cardinal point of inquiry; and it was limited from 14½ to 16 years. Any candidate who was found to be beyond these limits was *dismissed without further inquiries.* Although so clearly stated in the circular, and in the various placards which were posted in different localities to arrest their attention, no fewer than 1,003 candidates, or 180 per 1,000, were thus, it may be said "self-proscribed." Some were above and others were below the prescribed limits. The exact numbers were—

Under 14½ years	367,	or	66 per 1,000.
Over 16 years	636,	or	114 „
Total	1,003,	or	180 per 1,000.

Boys too old were, therefore, nearly twice as numerous as boys too young.

The

The *ratio per* 1,000 *rejected* during the four half-yearly periods was for the App. No. 1.

First half-year	242	
Second „	173	168.
Third „	153	
Fourth „	177	

From this summary, I drew two deductions—

1. That these candidates discovered, after a very short time, that their age would be more strictly scrutinized than they expected, and that they consequently kept away if in a predicament regarding it. This is shown from the great difference, no less than 74 per 1,000, between the ratio rejected in the first half year and the *mean* of the remaining portions, this mean again being close, on the one hand, to the ratios for the three component half-years, and, on the other, to the general average for the two years.

2. That a certain number of such defaulters must always be expected; and that this ratio may be laid down as about 170 per 1,000.

Growth.—*Weight* was ommitted, but the Regulations affixed a minimum for *stature* and *chest measurements* according to age, viz.:

For Boys between	Height (without shoes).		Measurement round the Chest.
	Feet.	*inches.*	*inches.*
14½ and 15	4	8½	27½
15 and 16	4	10½	29½

According to this standard, [illegible] 1,07 or 269 per 1,000 boys were rejected as imperfectly grown for their age, viz.:—

In stature	674,	or	121 per 1,000
In chest	823,	or	148 „
Total	1,497,	or	269

Although they had attained the above standard, the medical officers rejected forty-seven others as unsatisfactory in their development, and seventy for the capacity or configuration of their chests. These togethermade a total of 1,614, or 300 per 1,000, who were more or less *ill-grown*.

Education.—Although no higher test of education was required than that they must "be able to read and write," no fewer than 663

App. No. 1. boys, or 119 per 1,000, failed, and were rejected as insufficiently educated, viz.:—

In reading	494,	or 89	per 1,000
In writing	169,	or 30	„
Total	663,	or 119	„

Sight.—While testing their ability to read, the warrant officers discovered a total of sixty-one boys, or 11 per 1,000, whose sight was so obviously defective that they were considered ineligible for medical examination, and they were accordingly dismissed without it at this stage of the proceedings. These rejections were exclusive of those by the medical officers for defective vision and diseases of the eyes and eyelids.

Character, &c.—The Regulations also provided that "No boys will be received from reformatories or prisons, or if they have been committed by a magistrate;" and, also, that "no boy will be entered without the written consent of his parents, guardians, or nearest relations." Hence six boys, or 1 per 1,000, were debarred, because—

One had been committed by a magistrate;
Two had been in reformatories;
One was a run-away apprentice; and
Two had not their father's consent.

The first three of these boys passed all their examinations successfully; when they returned, however, with the necessary documents, in order to be entered into the service, they were discovered to have been criminal offenders at some former period. Every boy who entered declared that he "was not indentured as an apprentice;" and the last two boys left home clandestinely, but were claimed by their respective fathers while actually under examination.

Medically Unfit.—The total number of the foregoing candidates who were found unfit at the preliminary or *non-medical ordeal*, and who were accordingly dismissed immediately thereafter, amounted to 3,249, or 583 per 1,000. The Medical Examination, to which the remainder were subjected, followed next, when 745, or 134 per 1,000, were found ineligible for the service. As stated in the outset, the ratio of the first was more than four-fold. This, added to those who were otherwise unfit, raised the total number of—

Candidates who were *unfit* to 3,994, or 717 per 1,000;
And left as *eligible* only 1,573, or 283 per 1,000.

The last number, which represented those who having passed both ordeals were eligible, was still further decreased by some, lastly, who

Did not Return with the necessary Documents.—No fewer than 416 boys, *i. e.* one-fourth of all who passed both sets of examinations successfully, did not return for the fulfilment of that purpose for which they had undergone these examinations, viz., to be entered into the Navy. This is very curious, considering how anxious these boys

boys were to pass, how disappointed they appeared if rejected, and, when unsuccessful at first, how frequently they re-appeared at this office afterwards. I thus became familiar with such faces, and readily recognised the individuals, notwithstanding their change of name and other devices, which recognition, after stout denial, they also eventually admitted.

In the absence of any positive reasons which can be assigned for their non-return, I suggest the following as highly probable, and consider such remarks most opportune here. (1.) Their non-return was due mainly, I believe, to their being unable to procure the necessary documents to prove their age and the consent of their friends, but, more especially, their previous good character. Some boys went so far as to produce false papers, when, it is unnecessary to add, that both they and their papers were dispensed with. The Regulations provided for this contingency in these terms: "Officers entering boys are enjoined to take every precaution to ascertain that the written evidences they produce to prove their age, &c. are not falsified or forged; when any deception is detected, the candidate is to be rejected." Queen's Regulations and Admiralty Instructions, Addenda of 1868, page 34, art. 95.

As already stated, three boys were excluded from having been criminal offenders; and, I have little doubt that many others out of those now under consideration lay under a similar ban.* (2.) A few were chagrined at being remanded temporarily till cured of some slight complaint, as itch, with a minor form of which they were frequently affected. (3.) Some were annoyed when the comrade who accompanied them was not also accepted. (4.) Lastly, from my experience of them, I am inclined to think that a few lads, who, as they expressed it, "came to be examined only for a lark" were afterwards staggered at the trammels and realities of an engagement which, at their age, must have appeared life-long. All these, however, were, in my opinion, minor causes compared with that first mentioned, viz., the difficulty or in[illegible] good character. They were, as a matter o[illegible] who were ineligible [illegible] class, which in the [illegible] 792 per 1,000, can[illegible]

Candidates who entered the Navy.—Finally, the candidates who were eventually incorporated into the Navy were the small residuum of 1,157 out of the original 5,567, or 208 out of every 1,000 who presented themselves—a bare trifle over one-fifth.

Disposal of Candidates generally.—The disjointed data of the foregoing analysis, considered collectively, afford a succinct summary regarding the disposal of these boys.

To recapitulate. By the "weeding" just described, any 1,000 boys who desired to join the Navy dwindled down ultimately to 208, who

* An incident which actually occurred at this office, prior to my appointment, lends considerable countenance to this hypothesis. A smart ship's corporal, one of the Fisgard's police, who was specially detailed to assist in the measurement, &c., of these boys, while so employed had his pocket picked without his knowledge, and lost his purse with its contents.

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who actually entered it. Their original number diminished, according as they defaulted *in succession*, from the following causes:—

Beyond the prescribed age	180
Too narrow in their chests	148
Too short for their age	121
Unable to read sufficiently well	89
Able to read, but unable to write	30
Medically and physically unfit	145
Ineligible from minor causes	1
Did not wait for medical examination	3
Did not return after being passed	75
Combined together, these amounted to	792
And left as eligible recruits only	208
Out of the original	1,000

For practical purposes, at which I now aim, it may be considered that out of every 1,000 candidates 800 were ineligible, and that 200 only were eligible for the Navy; and now the statement made at the outset is explained,—how no fewer than five candidates were required to supply a single recruit.

Second.—General History.

Number of Candidates.

Number of Candidates during each month of the two Years, with the Probable Number of such as would appear if the Entry were continuous.

Months.	1866-7.	1867-8.	Calculated Average.
July	14 (3)	397	398+
August	0 (4)	145 (3)	290+
September	118 (2)	294	293+
October	322	356	339
November	201	157	179
December	277	129	203
January	345	411	378
February	303	233 (1)	305+
March	150	116 (2)	215+
April	210	324	267
May	310	200	255
June	252	303	278
Total	2,502 (9)	3,065 (6)	3,400

The

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The preceding Abstract shows the number of candidates during each month, and during the first and second year, each ending 30th June. These last were respectively 2,502 and 3,065, and together made the sum-total of 5,567 candidates who appeared during the two years. The number in the second year was greater by 563.

Such were the facts which actually occurred. Nevertheless, they do not constitute a perfectly correct or reliable criterion of the full number which this district could or would produce during a year or during any other specified period. The simple reason was, that the *entry was not continuous.* The training ships at the Home ports being full, or for other reasons, the entry was suspended on three separate occasions, occupying altogether fifteen out of the 104 weeks, *i. e.* exactly one-seventh of the whole period. The small ciphers in parentheses in the first and second columns show the number of such weeks in each month, which amounted to nine in the first year, and to six in the second.

With these allowances, the numbers, calculated from the average of each year, would be increased to 3,045 and 3,465 for the first and second year, respectively. The *mean,* I consider, would closely approximate to the latter, and would range about 3,400, which again would be divided among the different months, as noted in the last column.

The entry being suspended, the full numbers were *calculated* for the five months marked +; the remaining seven months give the *actual mean* of the two years. The monthly average would then be 283.

It will be seen further that, while—(*a*) five months maintained this average, (*b*) four months were considerably superior, and (*c*) three months were considerably inferior.

(*a*) The *average* months were April to September (July excluded).

(*b*) The *superior* months were July, January, October, and February.

(*c*) The *inferior* months were November, December, and March. In both [illegible] the months ranked in the above order.

These fluctuations [illegible]

1st. *Inferior Months.*—Spring labour may have [illegible] boys to the fields in March; while, during Christmas, they would naturally feel disinclined to leave their homes, poor as they might be. Christmas being passed, the numbers swelled with the privation consequent on the maximum of cold, which is well known to *follow* that season. Next as to the—

2nd. *Superior Months.*—The large numbers of January extended into the first half of February, from which period they decreased, and, after falling much below the average in March, they regained that average and steadily maintained it until October, when they again rose. This rise in October was due to the close of the hop season, which in this great hop district (Kent) affords such extensive and comparatively remunerative employment, frequently to whole families. It will be seen also that, while the average was being steadily maintained, an

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unexpected and anomalous rise occurred in July, which constituted it the *maximum* month of the year. This, too, is within the bounds of explanation. Irrespective of statistics, July has been remarked at this office to be a prolific month; and the foregoing abstract, which is based on statistics, proves that when, as in 1867, the entry was uninterrupted, the number was nearly 400, and was higher than in any other month of the two years, January of 1868 alone excepted. Something perhaps was due to the return of such lads from hay-making; but the reason alleged, and as I believe quite correctly, is the return home on leave at Midsummer of boys from the training ships, who originally joined from this district. Their improved condition, generally and financially, corroborated the description which they were sure to give of the advantages of their new mode of life, and stimulated their acquaintances to follow their example.

It may be laid down, therefore, as an established fact, based on observations extended over two years and on nearly 6,000 individuals, that:—the gross annual number of Candidates from the Metropolis would somewhat exceed 3,000; but that, even under a rigorous standard, the net-yield of those who are perfectly fit for all the requirements of the service will be from 600 to 700. The question then arises immediately, "*What proportion does this bear to the total requirements of the service?*" To solve it, I framed the following Abstract from two Parliamentary Returns on this subject, which were called for and ordered to be printed by the House of Commons.*

Number of 2nd Class Boys entered for the first time in - -	1866–7.	1867–8.	Average of the two Years.
1. Harbour Ships - - -	615	896	755
2. District coast-guard ships	1,039	530	785
3. Training ships - - -	1,347	1,229	1,283
Total Number entered for *Training purposes only*	3,001	2,655	2,828

Total Number in Training ships:

On 1st April 1867 - - - - -	3,045
„ „ 1868 - - - - -	2,922

Now these two *financial years*, which ended on 31st March, coincided almost exactly with the two years ending 30th June, during

*Parliamentary Papers, Nos. 23 and 474, Session 1867-8, Returns on Navy (First-Class Boys, &c.)

during which I carried on my observations. Assuming that the total number of boys who were entered into the service was sufficient for all its requirements, and that the gross number of candidates furnished by the Metropolis was a criterion of the number it could supply, the annual average in both these cases, by a curious coincidence, was identical, and ranged about 3,000. Had all such boys been eligible for the service, the Metropolis would of itself have supplied the entire demand; but, whereas their effective ratio was reduced to one-fifth, it is clear that the metropolitan district supplied exactly that proportion of all boys who entered the Navy during the last two years. App. No. 1.

These lads were entered by harbour, coast-guard, and training ships, and the average for the two years, noted in the last column, shows that the first two supplied equal numbers, but fewer than the last, in the ratio of three to five. Training ships apparently entered nearly one-half of the total number. As the London boys were supplied through the *Fisgard*, they absorbed 600 out of the 750 credited to harbour ships, the balance remaining mainly for the guard-ship at Chatham and the flag-ship at Sheerness. *On an average*, each Coast-guard ship could not have supplied more than seventy-five boys, and each of the four ports where training ships are stationed furnished about 300. While contributing one-fifth of the total entries, this London Contingent embraced three-fourths of all from harbour ships, and was equivlalent to eight times the number sent from any coast-guard ship, and double that from any established naval port. *The supply from London, therefore, greatly exceeded that from any other source.*

Lastly, there are two more points of importance regarding the yield of London candidates.

First. Without making any allowance for periods of suspended entry, the second year was actually more prolific than the first by 563 candidates. This was a proportional increase of more than twenty per cent. (22½) of candidates, and of more than 100 actual entries.

Second. The following [illegible] shows the ratio per thousand of every thousand candidates [illegible] medically, and who actually [illegible] half-year.

Ratio per 1,000 Candidates.	Fit Medically.	Fit non-Medically.	Entered into the Service.
First half-year - - -	614	332	179
Second „ - - -	650	327 323	187 188
Third „ - - -	706	310	197
Fourth „ - - -	718	406	263
Average for Two years -	681	342	208

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The following will be noticed:—

(1.) The ratio "passed non-medically" in the last half-year exceeded the average, which was constant during the previous eighteen months, by eighty-three per 1,000.

(2.) There was a steady increase every half-year in those who were "medically fit," and the difference between the first and last periods amounted to 104 per 1,000. Of this again. But, what was most important,

(3.) The ratio actually incorporated into the service, which began with only 179 per 1,000, rose gradually through 187 and 197; and then, by a much more decided movement, attained its final maximum of 263. The increase on this point, which is the *crucial test* of improvement, was eighty-four per 1,000 over the first half-year.

From the foregoing circumstances I deduced; 1st. That the yield of such boys will increase, and, 2nd. That the candidates themselves will improve. This is also my individual opinion from what I have observed at this office during nearly three years.

Social Condition.

These boys belonged to the lower classes of the metropolis. Notwithstanding the well-known partiality for a sea life which is evinced by all classes of English boys, no boy of good parentage and no such irreclaimable sons of gentlemen as, unhappily, are not infrequent in the ranks of our army, ever presented themselves; had they harboured any such intention, they would have been thwarted by the insuperable obstacle that "no boy would be received without the written consent of his parents, guardians, or nearest relations." Those candidates who appeared, almost universally represented that they were pursuing certain trades or occupations in civil life. The only exceptions, as will be seen immediately, were some boys who had been at sea, a few who came direct from school, and a very few who were clerks in offices. The last was apparently the highest social position attained; and three, or at most four, excepted, none ever stated that they were engaged in agricultural pursuits.

The *previous occupation* of every boy who was examined medically was registered. I was thereby enabled to prepare Table I., which embodies several particulars, and may be regarded as a good criterion. It gives the following ratios as the occupations, &c., of every 1,000 candidates, viz.:—

1. Trades, and in-door occupations	472
2. Out-door occupations	353
3. Training ships in Thames	89
4. Been at sea	47
5. From schools, unions, &c.	33
6. Clerks in offices	6
Total	1,000

With

With regard to each Group in the above Order. App. No. 1.

1. The Navy appeared most inviting to *boys at trades* or in *shops*, who together constituted one-half the candidates. Future comparative freedom and novelty appeared a desirable relief to present actual confinement and monotony. Besides these boys, whose numbers were nearly equal, were a few who were employed at Woolwich Arsenal, or who were domestic servants, and three who called themselves "commercial travellers."

2. Although a few carters, van-boys, pot-boys, porters, and the like, were included, "labourers" represented almost entirely the group engaged in *out-door occupations*; moreover, they were principally masons and plasterers. The former are known as "hod-boys;" the latter styled themselves "lath-boys" or "hawk-boys" (*sic*).

3. The *Training-ships* in the Thames were two sailing frigates lent by the Admiralty to the "Marine Society," or as a "Home for Destitute Boys." The former, "Warspite," was moored off Woolwich, a little above the Fisgard flag-ship, and contributed 86 per 1,000 candidates. The latter, "Chichester," at Erith, a more recent institution, furnished only 3 per 1,000.

4. A total of 47 per 1,000 boys had *been at sea*, in the coasting, but oftener, in the foreign trade. This group included seven bargemen and watermen from the Thames and Medway, who, however, had not been at sea.

5. Another group, of 33 per 1,000, came direct from *schools' unions*, &c.

Lastly, *clerks* in offices numbered only 6 per 1,000.

Education.

The last point of interest in the General History of these boys was the state of their Education. As already stated, 1,003 boys were dismissed as of improper age; but of the remaining 4,564, whose education was tested, 494 were rejected for being unable to read, and 169 to write, while 3,901 were able [illegible] both. I accordingly calculated the following Summary [illegible] with 13,274 army recruits examined in 1866 by army medical officers, the results being taken from the latest statistics thereon in the "Army Medical Department Report for 1866," p. 39.

Of every 1,000	Unable to read or write.	Able to read only.	Able to read and write.
Army Recruits for 1866 -	206	87	707
Naval Boys, 1866–8 - -	108	37	855
Difference in favour of latter	98	50	148

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The ratio in the Army who were unable to read and write was nearly double that in the Navy, and amounted to one-fifth of all. "This," the report adds, "shows a larger proportion able to read and write than in 1865," when the failures were 218 per 1,000 against 206 in 1866.

Where Educated.—Lastly from a column in the register headed "Where Educated," I framed the annexed Abstract regarding the 1,157 *boys who entered the Navy*, this information regarding others being omitted.

Schools assigned.

National - - - -	1,027	Wesleyan - - - -	2
Private - - - -	103	Industrial, Charity, Workhouse, Union, Foundling Hospital, Christ Church, Grey-coat, Grotto at Paddington, St. Mary's Orphan (North Hyde), each one; total - - -	9
Military - - - -	5		
Greenwich Hospital - -	4		
Government - - -	1		
Sunday - - - -	2		
Patriotic - - - -	4	TOTAL - - -	1,157

It shows that, out of every 100 boys, 90 were educated at national schools, 9 received the benefit of private schools, and the remaining one per cent. was indebted mainly to a Government provision. Of the last section, 10 boys had been at military or Greenwich Hospital schools, and four others at the Patriotic Schools established after the late Russian War.

Third.—PHYSICAL DEVELOPMENT.

As all the boys who were examined medically were previously measured, and the *results recorded*, unprecedentedly numerous data were accumulated regarding this exceedingly circumscribed age, which is peculiar, moreover, in this respect, that what may be termed the "active" growth of the human body ceases at this period when puberty is attained. When, therefore, the subject of their Physical Development is broached, a very wide field of inquiry immediately opens. I should, however, far transgress my present scope and limits, if I did anything more than simply extract two out of the many results of my calculations. These calculations occupied a considerable

siderable period subsequent to the collection of the above data, and are extensive enough in themselves for treating this as a distinct subject. App. No. 1.

The first result includes—

Their Average Measurements.

Number Examined.	Age.	Stature.	Weight.	Chest Girth.
	Yrs.	*Ft. in.*	*Lbs.*	*In.*
2,100	14½ to 16	5 0½	97	29½
700	14½ to 15	4 11	89	28½
1,400	15 to 16	5 1	101	30

It must be carefully noted that the above were *net values*, and that they were absolutely correct.* This summary gives the average for all considered *in toto*, and also when separated by the age of 15 into two groups.

The second result of my calculations was a

Comparison with other Classes.—Without entering into details, it will suffice, if, *after consulting the highest authorities*, I state that, strange as it may appear, no observations of a similar nature have been made, or at any rate published, regarding other classes, and that a great void exists on this subject. The present observations, so far as I can discover, are unique, and, until superseded by better, they may serve for reference.

Under these circumstances, I was obliged to revert to the standard work of an eminent foreign statist and mathematician, which was published a generation back (1835).† It has been for several years in my possession for consultation, and it contains in its body, but mainly in its appendix, the only available observations. Though few,

* The stature was exactly double the chest measurement, and every inch of height was accompanied by 1½ to 1⅔ pounds of weight.

† "A Treatise on Man and the Development of his Faculties." By M. A. Quetelet. Translated into English by Dr. R. Knox, F.R.S.E.

App. No. 1. few, and not quite suited to my purpose, they enabled me to compare these boys with the following persons. With—

1. *University Students,* who were carefully measured by the late Principal J. D. Forbes, when Professor of Natural Philosophy in the University of Edinburgh.

2. *Belgians of all classes,* whose average was determined by M. Quetelet, apparently to his satisfaction.

3 and 4. *Factory and non-factory children,* from the observations of Mr. Cowell, a Government Inspector of Factories; and

5. *Young persons,* who were specially measured by Dr. Harrison, Surgeon, of Preston.

To these I added the results I calculated for—

150 *Labourers* (50 under 15 years and 100 between 15 and 16 years) who appeared among these naval boys, and offered a legitimate comparison.

Finally, I compared these boys as they actually were with what they were required to be, viz., with the *Admiralty standard.*

No chest measurements were given for the first four classes: those for the 5th were taken from a medical work,† which also quoted Dr. Harrison's observations.

The data given regarding all the first five classes must be received with reservation. Except the 2nd class, whose number is not given by M. Quetelet, one general observation covers the other four, viz., that, for any special year of age, the average number was too small to justify any comparison. These averages did not exceed 70 in the case of students, 41 and 23 in factory and non-factory children respectively, and 94 in "young persons." Further, besides this general objection, there were specialities.

1. From the Principal's explanation, no student under 15 years old was included; and, the number over 15 years of age was most probably considerably smaller even than the average, inasmuch as very few young gentlemen enter the University so young.

2. The translator has added, in a foot-note, that "very few non-factory children of the ages of 16, 17, and 18 have been measured."

3. Not having Dr. Harrison's original paper at hand, I could not discover to what class or classes his observations referred, although I selected the *males.*

With these reservations, and after reducing French measures to English when necessary, I found the following results, showing the difference between these boys and those with whom they were compared

* Aitken's Science and Practice of Medicine, Vol. II. p. 421.

compared, the difference being marked + or — according as the naval boys were superior or inferior. App. No. 1.

Difference in	Age.	Belgians of all Classes.	British Students.	Factory Children.	Non-Factory Children.	Young Persons (Harrison).	Labourers among Naval Boys.	Admiralty Standard.
Height (Inches)	14½-15	— 1·8	—	same	+ 1·4	+ 2·8	same	+ 2·5
	15 -16	— 1·5	— 2·7	same	— 1·4	+ 2·7	— ·3	+ 2·5
Weight (Pounds)	14½-15	— ·7	—	+ 3	+ ·4	—	— ·1	—
	15 -16	— ·8	7	+ 5	— ·7	—	— ·1	—
Chest (Inches)	14½-15	—	—	—	—	+ 2·0	+ ·3	+ 1·0
	15 -16	—	—	—	—	+ 2·5	same	+ 0·5

This requires no explanation, and shows that the Admiralty standard allowed a favourable margin for both height and chest, while, as regards height, it coincided with the average deduced by Dr. Harrison.

Fourth.—Medical History.

Causes of Unfitness.

The number examined medically was 2,333, which was equivalent to a ratio of 419 per 1,000 candidates. The total results were—

Fit - - 1,588, or 680·67 per 1,000 examined.
Unfit - - 745, or 319·33 „ „

Speaking generally, one-third were ineligible. This ratio, however, did not obtain throughout the whole two years, but *decreased* every six months, nearly in arithmetical progression, thus:—386, 350, 294, and 282 per 1,000. These numbers showed the following improvement:

Half-yearly - - - - - 35 per 1,000.
Annually - - - - - 5 per cent.

There was a gradual improvement, therefore, in the fitness of these candidates *medically*. As was stated under "improper age," it is possible that those who felt doubtful about passing absented themselves, as they became better aware of the strictness of such an examination.

The unfitness of these lads varied with their *source* and *occupation*.

App. No. 1. This is proved by Table I., from which the *ratio per* 1,000 *of each group who were rejected* was as under; viz.—

Training ships	Warspite - 254 Chichester - 429	260
Been at sea or in boats	At sea - - 262 In boats - 429	273
Out-door occupations		287
Domestic servants		300
Clerks in offices		333
Shops and trades	Shops - - 355 Trades - - 360	357
Schools, unions, &c.	Schools - 362 Unions, &c. - 375	364

In individual sections the ratio per 1,000 rejected ranged from 254 to 375. Boys from the Warspite stood at the top of the scale, while those from schools were at the bottom. For their insignificant numbers, those from unions, &c. were still worse. A striking contrast is observed between lads who were pursuing out-door occupations, and those who were attached to shops, or learning trades, the difference amounting to no less than 70 per 1,000 fewer rejections in the former. Excluding the levies from the *Warspite*, who, to a certain extent, were picked specimens, it is interesting to compare the two extreme classes, viz., *boys from school*, and *boys who had been at sea*. The numbers per 1,000 rejected were of,—

	Boys from		
	School.	Sea.	All Classes.
Weak, cachectic, ill-grown, &c.	194	60	85
Small or malformed chests	52	29	30
Hernia	26	10	5
Varicocele	–	29	22
Venereal	–	30	3
Other causes	92	104	174
TOTAL	364	262	319

Compared

Compared with the general average for all classes, the above summary shows the following: App. No. 1.

(*a.*) The number of school-boys rejected for weak constitutions and faulty chests was two-fold, and for rupture five-fold; but they were exempt from varicocele and venereal. On the other hand,—

(*b.*) Boys who had been at sea did not differ on the first two points, but they laboured twice as frequently under rupture, and ten times more frequently from venereal affections.

The fitness of these boys according to their *age* is shown by the following Abstract, which includes some under 14½ and others over 16 years.

Age.	Number		Ratio per 1,000	
	Examined.	Rejected.	Examined.	Rejected.
Under 14½ - - -	2	0	1	0
14½ to 15 - - -	803	219	344	273
15 to 16 - - -	1,452	503	622	346
16 to 16½ - - -	76	23	33	303
Total - - -	2,333	745	1,000	319

Though medically fit, the first two boys were dismissed for being under the prescribed age. Those over 16 years were examined *specially*. The remainder, who were of the proper age, showed that, when separated by the age of 15, the juniors, though only half as numerous, were more eligible, in a medical point of view, than their seniors, in the ratio of 5 to 4.

It has been already stated that these boys were entered for thirteen consecutive years' service. This and some General Explanations may precede an investigation into the Causes of their Rejections.

1. As a general rule, no boy was rejected for a single cause. The 745 rejections comprised 332 of this nature against 413 for multiple reasons. The former included such complex causes as scrofula, &c. Seldom was a disqualification either so intrinsically detrimental, or so excessively pronounced, as to be sufficiently condemnatory *per se*. Two or more causes more frequently conspired, as will constantly recur in the sequel. Further, it can be readily understood that lads who were manifestly ineligible, would be either deterred or persuaded from appearing at an ordeal of whose minute strictness, I am persuaded, from experience, that the class in question were well aware.

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2. When one out of other causes was noted, it was *after careful consideration* with respect to its relative value, and to its future comparative detriment to a sailor.

3. When two or more disabilities indicated a constitutional origin, the *latter* was selected; hence, to a certain extent the preponderance of rejections under this head.

The 745 rejections under thirty classes shown in Table II. may be summarized, and referred to what, for convenience, may be called ten *Regional Groups.* Thus—

Total Number of Rejections due to the	Number.	Per 1,000 Persons.	Per-centage of Rejections.
1. Constitution generally, including scrofula, phthisis, constitutional depravity, unsound health, and extremes of growth - - -	216	92·58	29
2. Brain, organs of special senses and speech - - - -	153	65·57	20
3. Nose and mouth - - - -	77	33·01	10
4. Respiratory organs (phthisis excluded) - - - - -	23	9·86	3
5. Chest and spine - - - -	83	35·58	11
TOTAL rejections in upper half of body - - - -	552	236·60	73
6. Belly, genitals, and venereal -	100	42·86	14
7. Bloodvessels - - - -	11	4·72	1·5
8. Cutaneous system - - -	23	9·85	3
9. Organs of locomotion - - -	4	1·72	·5
10. Extremities - - - -	55	23·58	8
TOTAL - - -	745	319·33	100

Generalizing still further regarding these *regional defects*, and dividing the body, as I have done in the foregoing epitome, into two imaginary halves, at the level of its natural division by the diaphragm or midriff, it will be seen that 73 per cent. of all the disabilities which entailed rejection were located in the upper half of the body, and that the remaining 27 per cent. belonged to its lower half. When thus compared, the upper half of the body was threefold more defective than the lower. This might have been pre-supposed from the number, but more particularly from the nature, of their respective contents; but I shall show hereafter, that this disparity did not hold good in such older persons as Army recruits. The true explanation lies, I consider, in the preponderance of "constitutional" disabilities, which

which are prone to manifest themselves in the upper division, and more especially in its uppermost section, viz., the face and chest.

Further (1.) Among "Constitutional Causes," one stood paramount, namely, *Struma*, or Scrofula. Within and without the medical profession its prevalence is notorious; but I was as little prepared to discover, as I had intended to prove, by adopting what seemed to me a natural classification, namely, its minute ramification among the present disabilities, which are comprised in the first five groups. It was most conspicuous in the first group; and it was more closely connected with the second than might at first be supposed. Many cases of "defective vision" which were unmarked by external appearances may have resulted, I think, from internal changes dependent upon strumous deposit, as is now daily revealed by the Ophthalmoscope.

(2.) Among "Individual disabilities," owing solely to the extreme frequency of the last (defective vision), *diseases of the eyes* ranked first, judging from the numbers disqualified.

(3.) Finally, boys of the class described, and verging closely on puberty, were occasionally affected by *Venereal*, but to an extent which I leave others to decide as great or small.

The details regarding the foregoing classification are given in Table II. which I shall explain, taking the various groups of disabilities in succession.

1. *Constitutional.*

The numbers disqualified were, by:—(1.) Scrofula, 41; (2.) Phthisis, 20; (3.) Other constitutional depravity, 45; (4.) Unsound health, 21; (5.) General debility, 20; (6.) Muscular tenuity, 8; (7.) Under-growth, 47; and, (8.) Over-growth, 14. Total, 216. The last excepted, the simple enumeration shows how closely all these classes were allied, and how insensibly they glided into each other, so that typical specimens only were really distinctive. Nevertheless, by carefully considering each case, I differentiated between them with the foregoing results. To particularize—

(1, 2, and 3.) Passing over lads who were strumous or phthisical, 45 others manifested constitutional depravity, generally in the form called "London Cachexia"—a depravity of the blood in the lower classes of large towns. Five boys, who are most conveniently considered here, were exceptions, inasmuch as three were specially affected with rickets, and two with goître.

(4.) Thirteen boys who were more or less anæmic, six boys, who, at the time of examination, were out of health, and two who laboured under the specific effects of lead-poison, comprised the total of 21 boys who were of "unsound health."

(*a.*) The anæmic condition was closely allied to the cachexia just mentioned, and resulted from bad feeding, the confinement of their trades, &c.

(*b.*) Of those more particularly "out of health," were three lads, viz., one from the "Chichester," who was deeply jaundiced, and two others from working in paints and colours.

 (*c.*) The

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(*c.*) The deleterious effects of lead were more unmistakeably characteristic in two boys who were painters, (one of them in Woolwich Arsenal,) and who presented either "dropped hand" or "blue-gum."

(5, 6, and 7.) In addition to 28 boys, who were more particularly disqualified by general or muscular debility, the external condition of 47 others, *irrespective of any measurements*, showed that, for their age, they were decidedly undergrown or ill-developed.

(8.) On the other hand, and as may appear somewhat strange, for being in the very opposite condition, a few boys, one-third only, however, as numerous as their antipodes, were disqualified by being "overgrown." They are introduced here for the sake of contrast, and because I considered this anomalous condition was more constitutional than local. Instead of presenting, as was required, "a proper and just proportion between the different members of the body," these boys were too heavy, clumsy, or loosely built, ever to make even moderately active sailors. Moreover, this excess in growth was always associated with other detriments, which were intrinsically more than defects, and of themselves amounted to disqualifications. Such were knock-knee, (which was very frequent in this class,) bow-legs, and splay-feet. One lad was completely unable to fulfil that condition of the Regulations which directs that, "by holding on by a rope, (he) show that he can bear the weight of the body clear of the ground, without any difficulty, with each hand, for at least five seconds."

Further, I am able to show to what extent the *physical development* of the last five classes deviated from the standard; and for this purpose I shall combine the 4th to the 6th class, as "weak." In the subjoined summary, the first two classes were *inferior*, and the last was *superior* to the general average, the difference being for the boy who was—

	Stature.	Weight.	Chest.
Weak - - - -	- -	5 pounds -	1 inch.
Under-grown - - -	2 inches -	11 „ -	1½ „
Over-grown - - -	2 „ -	9 „ -	1 „

As was expected, the weak lad was actually taller than his compeers by a quarter of an inch; while in the last two classes, who were diametrically opposed, the oscillations on each point were almost identical and exactly counterbalanced each other. And now will be explained what may hitherto have appeared somewhat paradoxical, namely, Why a boy who was really too well-grown was thereby ineligible? In addition to the physical defects to which he has been shown to be liable, he is now proved to be burdened with two extra inches of height, and, what is worse, with nearly 10 extra pounds of weight.

2. *Brain, Senses, and Speech.* App. No. 1.

(9.) Nine boys were rejected for weak intellect; (10.) Four for fits; (11.) 115 for diseases of the eyes and eyelids; (12.) Eighteen for deafness and diseases of the ears; and (13.) Seven for impediment of speech. Total, 153.

(9.) It was quite impossible to certify, (as was required, on each boy's "continuous service engagement,") that nine boys were "intelligent." They were as unlikely to learn the duties of sailors as those who were "overgrown" were to perform them.

Moreover, this disqualification of unintelligence, to use no higher term, was never dissociated from other serious defects in sight, hearing, speech, the lower extremities, or inguinal rings. One demi-simpleton presented congenital squint; another lad was not only semi-idiotic, but he also stammered, had only one testicle, and dubious rupture of the intestines, any one of which disqualifications, individually, was quite sufficient to debar him.

(10.) The Regulations excluded boys who were "subject to fits," a generic but useful term, including any such predisposition, which operated against four lads, who confessed their liability. A further precaution was employed, as the written consent given in each instance by the boy's "parents, guardians, or nearest relations" finished with "I declare he has never had fits."

(11.) The largest number disqualified by a single class of disabilities were included under the next, viz., *conditions of the organs of sight.* This class covered three sections, and amounted in all to 115.

(*a.*) Nineteen boys had diseases peculiar to those organs or to their appendages.

(*b.*) Twenty-four laboured under defective vision conjoined with minor disqualifications, constitutional or local, *but not of the eyes*, and:

(*c.*) Seventy-two, the most numerous section by far, laboured under simple defective vision, unaccompanied by any external appearances.

(*a.*) The following list shows the particular ophthalmic diseases, and the numbers rejected.

Six for ophthalmia (one of the eyelids).
Three for squint (one lately underwent operation).
Four for specks or opacity of the cornea.
One for fixed and insensitive pupil (after iritis).
One for discoloured iris, with defective vision.
One for constant nervous winking of eyelids.
One for fistula lachrymalis; and, lastly,
Two for injuries, one causing cataract.—Total, 19.

(*b.*) The number of boys who laboured under minor concomitants, as well as defective vision, were:

Eleven who were ill-grown, strumous or cachetic.

App. No. 1.

Four with chests under the standard perimeter.
Three with extensive cicatrices; and, lastly,
Six with bad teeth or breath, weak legs or varicocele.
—Total, Twenty-four.

(*c.*) The above shows the frequency of struma; while, as regards the seventy-two lads with defective vision only, I am of opinion, as already stated, that there was a connection with strumous deposit within the delicate tissues of the eyes.

It will be remembered further, that the sight of sixty-one boys was so obviously defective that they were dismissed without medical examination. These, added to the present number, made a total of 176 rejected for this single cause, which, if all such be considered as having been examined medically, would be equivalent to the following ratios per 1,000 persons, viz.:—

Thirty-two, of all candidates who appeared.
Thirty-eight, of boys of the prescribed age.
Seventy-four, of those examined medically; and,
Two hundred and eighteen, of those found unfit medically.

(12.) Six boys had chronic scrofulous discharge from the ears; five were simply deaf; while the remaining seven, making the total of 18, were deaf and otherwise ineligible. Deafness was frequently associated with unintelligence or with enlarged tonsils, to which it bore the relation of cause or effect respectively.

(13.) Impediment of speech, or indistinct articulation, was a serious defect in a sailor. In one of those thus disqualified it was a family complaint; another spoke distinctly only with great exertion; while the two sides of the face were grotesquely unsymmetrical in a third lad, whose brain most probably was affected. Three others also laboured under this defect, the major disqualifications for which they were rejected being weak intellect or spinal distortion.

3. *Nose and Mouth.*

(14.) The special disorders as regards the *nose* were polypus in four lads, and malformation in one: (15.) and, as regards the *mouth*, diseased tonsils in forty-six: and (16.) Unsound teeth in twenty-six.—Total, Seventy-seven.

(14.) All the four rejections for polypus occurred within the last six months. It was the only disqualification in two lads, one of whom was rejected twice for it. It was associated in the other two with (*a.*) Illgrowth and carious teeth; or (*b.*) with chronic sore-throat.

Malformation of the nose was accompanied with a thickened condition of the lining membrane of the nose and muffled voice.

(15.) I observed

(15.) I observed two points in connection with a diseased condition of the tonsils. First, this condition was very frequent; and, second, these lads were quite ignorant of it. App. No. 1.

(*a.*) The tonsils were so enlarged or eroded in 46 boys, that they were disabled thereby. This does not, however, convey the most remote idea of the extreme prevalence of this condition in boys of this age and class. Very rarely was a candidate entirely exempt; and if all who were thus affected, except in a very minor degree, had been rejected by the medical officers, the total number of the last would have been nearer one-half than one-third, which it was. Except in the foregoing, it was not considered an insurmountable obstacle, because it was considered that, independent of the improved hygienic conditions under which they would shortly be placed, such lads would outgrow this tendency after being at sea and visiting the tropics or other warmer latitudes. An instance remarkably corroborative of this opinion occurred in a boy who was rejected for the state of his tonsils, in addition to general delicacy. Having gone to sea in the interval, he presented himself four months subsequently, so wonderfully improved in every way, especially in the tonsils, that he was entered. He had gained half an inch in height, and, what was more, the same in chest also, besides seven pounds in weight.

It is unnecessary to add, that diseased tonsils frequently constituted a secondary cause of disqualification, or that they frequently accompanied a general strumous habit.

(*b.*) Allowing for their natural desire for concealment, &c., lads who laboured under enlargement of these glands, even when so extreme that they touched each other and completely occluded the fauces, so regularly denied any feeling of inconvenience, and even knowledge thereof, that I could not altogether set aside their universal asseveration.

(16.) In those rejected for unsoundness, the Teeth were the very reverse of "good, strong, and sufficient in number," as demanded by the Regulations. These lads were quite unable to masticate the hard provisions issued at sea, as the unsoundness affected the grinders particularly. Besides being occasionally an indication of general bad health, it was probable that indigestion, mal-nutrition, and debility would follow at some future time.

4. *Respiratory Organs.*

(17.) Though the condition of the heart and lungs, for which twenty-three boys were rejected, was always "ascertained by auscultation and percussion," organic disease of the heart was seldom observed. It was evident, however, in two lads, in whom it followed rheumatic fever, a well-known precursor. The present non-phthisical defects were principally dyspnœa or palpitation, most frequently combined, either of which was self-condemnatory in future sailors.

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5. *Chest and Spine.*

(18.) The numbers disqualified were, from a contracted state of the chest, 31; from its malformation, 39; and from (19) distortion of the spine, 13.—Total, 83.

(18.) Irrespective of any measurements, the chest, in the class in question, was considered unsatisfactory, in a medical point of view, "in reference to its form and capacity," and to its expansibility—three elements militating against the individual's "breathing power." A chest malformed or narrow, especially in its lower half, was objectionable; but when immobility on forced inspiration was superadded to either, the candidate was certainly dismissed. The usual deformities were pigeon-breast, or a bulging of the ribs on one side, at their junction with the breast-bone. As 823 candidates were dismissed *without medical examination*, because their chests were under the standard girth, a total of 893 were therefore faulty on this point. These included 20 per cent. of all lads of the prescribed age, against 16 per cent. who were defective in stature, and showed that a few more were rejected for their transverse than for their vertical development.

(19.) Malformation of the chest and distortion of the spine were frequently conjoined; but spinal distortion or curvature, of itself, more particularly incapacitated 13 boys. It was extreme in four, and less pronounced in the other nine, but complicated in the latter as follows:—

One had a tumour of the belly (most probably the liver displaced by the condition of the spinal column); three had faulty chests; two squinted or spoke indistinctly; two were unwieldy, or stiff in the legs; and one had chronic discharge from the nose.

The nature of the curvature, whether lateral or angular, was not always noted. Out of the 13 boys thus disqualified, three were *shoemakers*. This large proportion suggests a connection with a particular trade, which (trade) I am inclined to think is, to a great extent, hereditary.*

6. *Belly, Genitals, and Venereal.*

(20.) Eleven boys laboured under hernia, and seventeen under laxity of the abdominal rings, making a total of twenty-eight

* While reading through Mr. Darwin's great work, immediately after it was published, I noted the following extract as peculiarly apposite:—"Many medical men believe that the abnormal form of the spine so commonly observed in women of the higher ranks, results from the attached muscles not being fully exercised. So it is with our domestic fowls, for they use their pectoral muscles but little; and out of twenty-five sternums examined by me, three alone were perfectly symmetrical, ten were moderately crooked, and twelve were deformed to an extreme degree." "Finally, we may conclude, with respect to the various breeds of the fowl, that (under domestication) the crest of the sternum, to which the pectoral muscles are attached, has invariably become less prominent, the whole sternum being also extremely liable to deformity. These results we may attribute to the lessened use of the wings."—*Plants and Animals under Domestication*, pp. 273, 4.

eight under this species of disability. (21.) Two were disqualified by hæmorrhoids (piles). (22.) Fifty-one by varicocele. (23.) Eleven by non-venereal affections of the genitals; and, (24.) Eight by venereal affections. Total, 100.

(20.) Towards the close of the (medical) examination, after performing various physical movements, including "hanging on by a rope," the candidate was examined as to the presence of, or predisportionate to, rupture, with the results stated above. Eight of the eleven herniæ were inguinal, one scrotal, and two congenital. One congenital and five inguinal ruptures were on the right side, and the remaining six on the left side. The finger introduced within the external ring discovered extreme laxity, so that other seventeen boys were liable to protrusion of the abdominal contents on any unusual exertion.

(21.) An interval of twelve months elapsed between the two rejections for hæmorrhoids, which in one instance formed "a large fleshy tumour."

(22.) Besides being, as already strted, the sole or principal disability in fifty-one boys, variocele was a secondary disability in thirteen others; and, further, it was so slight in eight, that they were not considered ineligible. It affected in a greater or less degree a total of seventy-two boys, *i. e.*, about one-thirtieth of those examined medically. It bore the ratio of less than one-third to what is observed in after life; for, according to one of the latest writers on this subject, "the disposition of the spermatic veins to enlarge is such as to cause varicocele in about one male adult in ten."* It always affected the *left* side in the sixty-one lads, where the special side was noted. Further, except in the last eight boys, in whom it was trifling, the connection of lax inguinal rings was constantly remarked, which together constituted a double disqualification.

(23.) Non-venereal affections of the genitals comprised:—(*a*) sarcocele; (*b*) absent testicles; and (*c*) bed-wetting, or "juvenile incontinence," by which three, two, and six lads respectively were disqualified. Total, Eleven.

(*a*) Sarcocele was noted against three lads, always on the right side, with the following remarks:—One boy was rejected for it solely, the result of a kick; in a second it accompanied relaxed inguinal rings; and the third had hydrocele and congenital phymosis.

(*b*) For absence, or rather *non-descent*, of the testicles, two boys only were rejected. In one of these, who was rejected for this state on three separate occasions, the right testicle had descended at all, and the left only imperfectly. The other boy had only one testicle *in situ*, but on which side was not noted. This absence of a testicle was already noticed in a semi-idiot; these

* Professor G. M. Humphry, of the University of Cambridge, in Holmes's "System of Surgery," vol. iv. p. 612.

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these glands had also not descended in another boy, who was rejected as ill-grown; lastly, in two boys who were fit medically and eventually entered the service, the left testicle had not descended in one, and the right was retracted in the other. Thus, one or both testicles did not occupy their proper situation in six separate individuals.

(*c*) Six boys were ineligible because they represented that they habitualy wetted their beds. Two of them laboured under this disability only, one having been rejected twice. It was combined in the other four individually with the following secondary disqualifications;—viz., tall spare build and round shoulders, chronic sore-throat and habitual dyspnœa; splay feet; or inveterate itch.

(24.) Six of the eight lads rejected for venereal affections laboured under the more common form of gonorrhœa (one having balanitis) and two under primary sores. One was under fifteen years of age, two were over sixteen, and the others verged on sixteen. They all belonged to London, and their physical development was considerably superior to the average. Three, that is nearly one-half of them, had been at sea; one was a gentleman's servant, and the others reported themselves as carman, carpenter, French-polisher, and shop-boy.

In addition to the above who were rejected, two other boys were also implicated similarly. One of them, who was rejected for fits, presented also warts on his penis, most probably of venereal origin. The other boy who was reported eligible, but did not enter the service, presented marks of former buboes in both groins, which he frankly acknowledged followed primary infection, but whether gonorrhœa or syphilis was not ascertained. These two boys also came from London, and were labourer and blacksmith.

7. *Bloodvessels.*

(25.) Aneurism was never observed, but varicose veins of the legs solely disqualified eleven boys (one only having bad teeth in addition). Both legs were affected in three instances, one leg only in the remainder. In one of the last the disease extended to the thigh; the veins were painful and the knee stiff in another; and in a third the entire left half of the body was varicose.

8. *Cutaneous System.*

A total of twenty-three persons were disqualified, viz. (26) from wounds and extensive cicatrices, nine; and (27) from various cutaneous affections, fourteen.

(26.) Two boys were rejected for injury of the skull with depression, and seven for extensive or adherent cicatrices. Of the cicatrices, five were on the legs (including one from severe ulcerations after small-pox) or scalp, and two the result of burns on the arm and hand.

(27.) Inveterate

(27.) Inveterate cutaneous eruptions included itch (in four boys), ringworm, lepra, and eczema. The last (in the feet) was accompanied by general debility, protuberant belly, and protrusion (accident?) of the iris. There was an approach to ichthyosis (fish-skin) in one lad, and another had abscess of the scrotum. Besides these, two were remanded till cured of itch, or pediculi pubis; they never returned, being probably too chagrined. One boy had an extensive liver-mark on one side of his neck and face, which did not however entail rejection.

9.—*Organs of Locomotion.*

(28.) Four lads were affected respectively by chronic rheumatism or by late abscess, both of the hip-joint; and by necrosis, either of the ulna or of the fibula. In one lad who was rejected as phthisical, the upper two-thirds of the right great pectoral muscle were undeveloped without, however, affecting the motion of the corresponding arm.

10.—*Extremities.*

The defects were situated in (29.), the upper extremities in ten lads, and in (30.) the lower, in forty-five; total, fifty-five.

(29.) Except one instance of contraction of the elbow-joint, alleged to be natural, all the defects in the upper extremities were due to injuries of the following nature:—One to dislocation of the right clavicle; one to fracture of the left elbow, leaving a weak arm; two to injuries of the thumbs, and five to injuries of the fingers. The following conditions were also observed, but they did not incapacitate the three candidates, the first two of whom entered the service. These were (*a*), dislocation of the head of the radius, stated to be natural; (*b*), natural deformity of the left thumb; (*c*), enlarged finger-joints, attributed to his trade as a carver and gilder. The last did not return with the necessary documents to be entered.

(30.) Lastly, the forty-five lads who were disqualified by the state of their lower extremities, included (*a.*), four who were rejected for injuries; (*b.*) twenty-one for weakness, and (*c.*) twenty for malformation or deformity. (*a.*) The particular injuries comprised two fractures, viz., one of the knees, preventing running, with varicose tendency in the legs, and one of the thigh followed by shortening; and two minor accidents giving rise to stiffness either of the knee, or of the foot and ankle combined. (*b.*) Weakness was more particularly manifested by extreme knock-knee, weak ankles, or splay feet, each in four lads; while (*c.*) as to malformations, &c., ten candidates were bow-legged (six extremely); one had a deformed thigh, four had malformed knees or feet, and the remaining five had very malformed toes.

One-half of the present class were rejected solely for the foregoing causes; but the other half laboured under the following secondary

 disabilities,

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disabilities, which are most conveniently and briefly explained by being tabulated:—

Secondary Defects.	Lower Extremities.		Total.
	Weak.	Deformed.	
Overgrown	4	0	4
Illgrown and weak	1	2	3
Palpitation	1	2	3
Bad teeth, breath, or tonsils	3	0	3
Squint, or bad sight	1	2	3
Weak intellect	1	1	2
Polypus of nose	1	1	2
Lax inguinal rings, varicose veins, or itch	1	1	2
Total	13	9	22

One "overgrown" boy was quite unable "to hop first on one foot and then on the other," as required by the Regulations. Legs bent from early riding, as occasionally happened, were not considered objectionable. Defects in the lower extremities formed a secondary disqualification in ten other lads, whose major disqualifications were overgrowth (six); defective vision (two); spinal curvature (one), and incontinence of urine (one).

Comparison with Recruits for the Army.

I have now arrived at a point when the history of these candidates becomes more interesting by comparing them with the only other persons who, from being similarly circumstanced, admit of fair comparison, viz., *Army Recruits.* With this object, I selected the following data from the "Army Medical Department Report for the Year 1866," because it embodies the latest statistics published on this subject, which may be considered as an average criterion. It must be remembered, however, that as the nature and requirements of the sea and land services differed, so also the conditions of the two classes of recruits were not identical, but only *parallel.* This difference was attributable mainly to two causes, and partly to a third. These were (1.) the *source* whence they were derived; (2.) the *age* at which they entered; and (3.), the method pursued in their *examination.* Each requires some explanation.

(1.)—*Source.* Irrespective of 156 out of every 1,000 recruits who were "mechanics employed in occupations favourable to health," country districts supplied the army very liberally, inasmuch as 609 were "labourers, husbandmen, and servants." Together, these made a total of 765 per 1,000, and showed that three-

three-fourths of all recruits for the Army were obtained from sources which were more peculiarly favourable to health than the crowded metropolis:—that single source which, with hardly an exception, supplied *all* the present boys for the Navy.

(2.)—*Age.* Persons from seventeen to twenty-five years of age, and even upwards, were eligible for the army; while boys for the navy were strictly limited between fourteen and a-half and sixteen years. A margin, therefore, of more than eight years in the former was reduced to one and a-half in the latter. More important, however, than mere seniority was the fact that this seniority engrossed a period of life when bodily development is still in progress. "It does not appear," says M. Quetelet, the highest authority on the subject, "that the growth of man is completed at twenty-five years of age."

(3.) *Examinations.*—All the 2,333 boys were examined by myself, assisted by another medical officer of the Royal Navy; and these examinations were conducted on one uniform system during the whole two years. It is not at all necessary to determine, nor can I indeed ascertain from the Report, the total number of surgeons, civil besides military, who, on the other hand, inspected the 20,410 recruits of 1866. This, at all events, is quite certain, that their number must have been incomparably greater, and that the methods pursued by them must have been more or less different. Allowance must, therefore, be made for difference in medical opinion and correlative matters.

It must be remarked, further, that my examinations were *final*, because the Naval Regulations provide that "no man or boy who has been reported fit for the service by a medical officer of the Royal Navy or Royal Marines is to be again subjected to examination," except under very peculiar circumstances, which are specially detailed. The contrary obtained in the Army, where re-examination was the rule, and secondary rejections were thus superadded to the primary "in the ratio of 25, or 104 per 1,000, of the recruits found fit in the first instance," by army surgeons or by civil practitioners respectively. Moreover, it may occasionally have happened, particularly on being re-examined, that recruits represented themselves as unfit for the Army, whereas boys adopted the very opposite principle as regards the Navy. Finally, such a circumstance may have taken place, but I am perfectly unaware that it ever did, during any period of my charge, now close on three years, viz., that, any boy was subsequently found medically unfit, or broke down in health, or required to be invalided out of the service.

Physical Development.—Here, too, is the most convenient stage, before comparing the medical history of these two classes, to contrast briefly their Physical Development. For this purpose I arranged the following Summary, showing the number out of 10,000 recruits who were included within certain limits of *age, stature,* and *weight.* It appears that nearly 80 per cent. were, on these three points, from (*a.*) 18 to 23 years of age, (*b.*) 64 to 68 inches in height, and (*c.*) 110 to 150 pounds in weight; while, as already shown, the naval boys averaged 15 years, 60 inches, and 90 to 100 lbs. on these three respective points. The generality, therefore, of Army recruits were

App. No. 1. not only half a dozen years older, but they were also as many inches taller, and upwards of 30 lbs. heavier.

Average Ratio out of every 10,000 *Recruits.*

Age.		Height.			Weight.	
Years.	Total.	Ft. in.	Ft. in.	Total.	Pounds.	Total.
18 to 19 -	3,014	5 4	to 5 5	1,292	110 to 120	2,134
19 „ 20 -	1,862	5 5	„ 5 6	2,869	120 „ 130	3,448
20 „ 21 -	1,239	5 6	„ 5 7	2,069	130 „ 140	2,411
21 „ 22 -	899	5 7	„ 5 8	1,508	—	—
22 „ 23 -	756		—	—	—	—
18 to 23 -	7,770	5 4	to 5 8	7,739	110 to 140	7,993

Medical Fitness of the two Classes compared.

The total number of boys rejected for the Navy, during my two years' tenure, was in the ratio of 319 out of 1,000 examined; while, for the year under comparison (1866), the total ratio of recruits rejected for the Army, primary and secondary inspections included, was 380 per 1,000. There was a difference, therefore, between these two classes of sixty-one per 1,000, which was in favour of the Navy. This difference would have amounted to 107 per 1,000 had the year previous (1865) been assumed as a criterion for the Army; for the Report adds, that "Compared with the results in 1865, this ratio shows a reduction of forty-six per 1,000 in the rejections (p. 32). Whether the one or the other of these two years be selected, the main point is settled,—viz., that proportionately fewer boys were rejected for the Navy than recruits for the Army.

Prosecuting this comparison, I constructed a Table (III.) showing how many out of 1,000 persons who were inspected, either for the Army or for the Navy, were disqualified by particular *classes of disabilities.* Further, I divided this Table into two portions corresponding with the natural division (already alluded to) of the body by the diaphragm, my motive being to ascertain whether, as in boys, the upper half was three-fold more defective than the lower. I found, however, that this difference did not hold good in recruits for the Army, who, after certain corrections, appeared to be equally disabled in both halves. A glance at the Table, more particularly its second portion, will explain how this change was effected.

From the same Table, again, I framed *two Abstracts,* in order to save explanation and repetition, and for the purpose of exhibiting, with brevity and clearness, the *similarities* and *dissimilarities* in the disabilities for which the two classes of candidates were rejected.

Having grouped together those classes of disabilities which were closely allied to each other, I arranged these groups for the two services

services respectively, in a descending series, according to their importance, and thus constructed the first Abstract. The principal disabilities which entailed rejection, and the numbers rejected per 1,000 inspected (omitting decimals) are then found to be, for the Army and Navy respectively, as follow:—

	For the Army.		For the Navy.	
1	Diseases of eyes and eyelids -	43	Diseases of eyes and eyelids -	49
2	Small or malformed chest, curvature, &c. of spine - -	41	Scrofula, other constitutional depravity, and unsound health -	46
3	Scrofula, other constitutional depravity, and unsound health -	35	Small or malformed chest, curvature of spine, &c. - -	35
4	Varicose veins - - - -	35	Varicocele - - - -	22
5	Diseases of heart and lungs (with phthisis included) -	35	Imperfect growth or development - - - - -	20
6	General and muscular debility -	31	Diseased tonsils - - -	20
7	Defects in lower extremities -	29	Defects in lower extremities -	19
8	Varicocele - - - -	26	Diseases of heart and lungs (and phthisis) - - - -	18
9	Hernia, and tendency to same -	23	Hernia, and tendency to same -	12
10	Venereal - - - - -	16	General and muscular debility -	12
11	Unsound teeth - - - -	13	Unsound teeth - - - -	11
12	Minor causes combined - -	53	Minor causes combined - -	55
	Total Army recruits rejected out of 1,000 inspected - -	380	Total Naval candidates rejected out of 1,000 examined - -	319

This summary proves that, on the whole, the principal disqualifications for both services are identical. Diseases of the visual apparatus stand first in both classes, and, in the case of the Army, they now displace varicose veins from that pre-eminence which they hitherto held. Contraction or malformation of the chest with distortion of the spine, or scrofula with its allies, stood next, though mutually interchanged for the two services. The other disabilities followed each other in each service, as enumerated.

It is curious further to remark, that exactly one-half of these groups maintained their relative priority in the two services, by appearing abreast of each other on the same line. These were the 1st, 2nd, 3rd, 7th, 9th, and 11th classes. Fourth in importance, in both services, were diseases of the veins, with this difference, however, that they principally affected the testicles of boys, but the legs of recruits.

Major disabilities, it will be observed, engrossed, in both cases, the whole of the rejections, save a trifle which remained to be divided between minor causes. This trifle slightly exceeded 50 rejections per 1,000 persons examined for either service.

So far, therefore, there was a general resemblance in the nature of the disabilities observed in recruits for the Army and boys for the Navy; but, notwithstanding this general similarity, considerable

App. No. 1. differences presented themselves in these two classes as to the ratio of each which was disqualified from particular causes. To explain this more clearly, I compared the last two columns of the same Table (III.), and, with the difference written down underneath, according as it was on the side of the Army or of the Navy, I framed the *Second Abstract* referred to, retaining decimals. It clearly shows, also in a descending series, what disabilities preponderated in Army recruits over Naval candidates, or *vice versâ*, and what were the differential values in each instance.

	Excess in Army Recruits over Naval Boys.		Excess in Naval Boys over Army Recruits.	
1	Varicose veins	30·61	Struma, and other constitutional depravity	22·02
2	Muscular tenuity	22·29	Imperfect development	20·14
3	Disease of heart and lungs (with phthisis)	17·38	Diseased tonsils	19·72
4	Venereal	13·12	Diseases of ears (and deafness)	6·11
5	Hernia, and tendency	11·42	„ eyes and eyelids	6·07
6	Unsound health	11·28	Overgrowth	6·00
7	Defects in lower extremities	10·30	General debility	3·33
8	Scars and wounds	8·99	Weak intellect	2·62
9	Small or malformed chest, curvature, &c. of spine	5·92	Impediment of speech	1·78
			Diseases of brain	1·47
10	Defects in upper extremities	4·88	„ nose and mouth	1·32
11	Varicocele	4·69	Non-venereal affections of genitals	·39
12	Unsound teeth	1·99		
13	Cutaneous affections	1·96		
14	Hæmorrhoids	1·83	Total Excess in boys who were rejected for the Navy	90·97
15	Affections of bones, joints, and muscles	1·32		
16	Minor disabilities	3·91		
	Total Excess in Army recruits who were rejected	151·89	Preponderance of rejections in Army recruits	60·92
				151·89

These discrepancies admit of explanation, and—

First, as to the Navy. It must be borne in mind that nearly all Army recruits sprang from a more healthful source than the naval boys. All the latter came direct from the Metropolis, where they were bred as well as born; they were also considerably younger, and further, many of them laboured under what is known as "London Cachexia." All this has been already explained; and remembering all this, Could anything else have been expected than that these boys should have defaulted, actually and relatively, so much more considerably, for the three conditions which so conspicuously head their list, and which, moreover, were so closely connected with each other?

The next three causes were, more or less, associated with or dependent upon the conditions between which they interposed, viz., —a constitutional taint which immediately preceded, and general debility which immediately succeeded.

It

It will be seen, further, that the ratios of excess in the classes of the two groups were equal among themselves, but that they fell to one-third in the latter group. The differences in the remaining classes gradually approached insignificance until finally, in non-venereal affections of the genitals, the last class of all, the difference was perfectly inappreciable, and considerably less than unity, even when accumulated for 1,000 individuals on either side.

Certain disabilities were peculiar to boys, and never appeared among recruits who were older. These were defective or excessive growth which had no counterparts in the Army, and a diseased condition of the tonsils. The infinitesimal rejection of Army recruits, only 0·83 per 1,000 inspected, for *all* affections of the nose and mouth; precluded the idea that diseased tonsils appeared among them to anything like the extent observed in boys for the Navy, in whom they entailed a special extra rejection of nearly 20 per 1,000 examined. The tendency thus shown by this complaint to appear in boys and to disappear in adults, is quite consonant with my experience during nearly three years at this office, where Men also are examined for the navy. Without any disposition to exaggerate or antithesize, I might add that, it was as exceptional to discover a boy who was altogether free from this complaint, as it was to meet with a man who laboured under it.

The slight excess connected with the visual organs is explained, to some extent, by certain doubtful cases of sight having been occasionally decided by myself, when such candidates were included among those who underwent medical examination.

Next, as to the Army.—The total ratio of rejections for the Army exceeded that for the Navy by 61 out of every 1,000 persons examined; and exactly one-half of this total difference was engrossed by varicose veins, which accordingly head the list of such preponderating disabilities. Though not, as hitherto, paramount, they are still among the chief disqualifications in Army recruits; but when these boys for the Navy are brought under comparison, they preponderate unquestionably first and foremost. Affections of the organs of locomotion end the list of major disabilities with a difference little more than unity. Various disqualifications intervene between these extremes, and occupy the positions assigned in the summary, where they are enumerated, and therefore do not require to be particularized. From first to last, they can all be referred generally to an increase in either—(*a*) certain morbid conditions, or (*b*) malformations, or (*c*) injuries.

But whatever be the nature of these various disqualifications, or whatever their differential value, one explanation, which is unique as well as universal, covers them all. This explanation is simply the difference of age between the two classes of persons. Two disqualifications, however, appear to me to be peculiarly connected with or enhanced by age. These were (1.) *Varix*, and (2.) *Venereal.*

(1.) Varix is known to affect tall persons, and, compared with the boys under consideration, the Army recruits were "tall." Stature, again,

App. No. 1.

again, at their age, was connected with the continued tendency to growth. Hence it is not surprising to find that, judging from the number of rejections (Table III.), varix was nearly eight times more frequent in Army recruits than in Naval boys.

(2.) Venereal appeared also as a preponderating disability, being fourth on the list, but not nearly to the same extent as varix. The seniority enjoyed by Recruits promoted them exactly to that particular period of life, when the sexual passions are stronger than at any other, and, like the propensity to crime, least governable. Taking the ratios rejected for it as the criteria for the two classes, recruits who had reached this climacteric showed their proclivity to be five times greater than that manifested in boys, coming even as the latter did from the snares of the metropolis, but who were only approaching the confines of puberty.

Vaccination.

Finally, the last point worthy of record in the medical history of these boys was the amount of protection they possessed against small-pox, either by a previous attack of that disease, but more particularly by *vaccination*. This point was sought for with great care and satisfactorily ascertained in 2,282 boys, being only 51 short of all who were examined medically. The results, absolutely and per 1,000, were as stated below—

	Number.		Per 1,000.
Satisfactory vaccination - - - - -	2,099	or	920
Vaccination and small-pox - - - - -	81	or	35
Small-pox only (vaccination absent or doubtful)	61	or	27
Vaccination absent or doubtful, and no small-pox - - - - - - - - -	41	or	18
TOTAL - - -	2,282	or	1,000

This shows that they were all protected either by vaccination, by small-pox, or by both, except the very small proportion of 18 per 1,000; further, this was an index of the state of vaccination in the lower classes of the metropolis in and about the year 1850.

In conclusion, on reviewing the foregoing results as the experience of two years, regarding this London district, the following *general deductions* may be laid down.

1. The annual number of candidates averaged 3,000, of whom one-fifth only were retained for the Navy, and the remainder were dismissed.

2. The general causes of unfitness included improper age, insufficient development, defective education, want of character, and medical disability.

3. Compared with those who were unfit medically, the ratio rejected for all other causes combined was fourfold.

4. The number of candidates fluctuated during different months, and this can be explained.

5. London

5. London furnished one-fifth of all the boys who entered the Navy during the period in question. App. No. 1.

6. These boys came from the lower classes of the metropolis; half of them were at trades or in shops; the other half came direct from the Warspite, sea, or school.

7. They were better educated than the generality of Army recruits, and they were almost entirely educated at National schools.

8. They measured, on an average,—in stature, 5 feet; chest circumference, 29½ inches; weight, 97 lbs.

9. They compared unfavourably in these measurements, as might be expected, with boys of the higher ranks of life; but otherwise they were favourable.

10. One-third of those who underwent medical examination were reported unfit; their fitness varied with their age, source, and occupation.

11. The principal causes of medical rejection were constitutional disease, depravity, or weakness (more or less inter-associated), and causes connected with the organs of vision. The upper half of the body was threefold more defective than the lower.

12. Compared with recruits for the Army, the numbers found unfit, after medical inspection, were fewer by 61 per 1,000. Ninety-five per cent. were satisfactorily vaccinated.

Considering it of the first importance to the Navy, and consequently to the State, that accurate information should be available regarding the capability of different localities to furnish the *personnel* required, I entered somewhat minutely into the present investigation, with a view especially to the occurrence of an emergency. Further, this investigation brings to light certain facts regarding the metropolis hitherto unknown or unsuspected. Finally, as the whole is untrodden ground, this, I believe, is the first attempt to treat systematically the subject of *Boy-recruiting for the Navy*. Finding the data at hand, I did not hesitate to devote the necessary time and labour, however prolonged, and to attempt, single-handed, to eliminate their results. It must be remembered, however, that this is only a part of what is daily observed elsewhere; and when those who possess similar opportunities contribute their observations regarding other ports, the sum total of information will be recorded, and the subject will complete. In this hope I close.

Table I.

Occupations of Naval Candidates, and the Number of each Group who were Rejected.

Groups.	Occupations of Candidates.	Number		Per 1,000	
		Examined.	Rejected.	Examined.	Rejected.
1	Trades and In-door Occupations:				
	a. Trades	522	188	–	360
	b. Shops: messengers or errand-boys	317	118	–	372
	c. Employed in shops (including 13 in offices)	171	56	–	327
	d. ,, Woolwich Arsenal	47	14	–	300
	e. Domestic servants	40	12	–	300
	f. Commercial travellers	3	3	–	1,000
	Total	1,100	392	472	357
2	Out-door Occupations:				
	a. Labourers (principally plasterers and masons), with a few van-boys, pot-boys, porters, &c.	799	228	–	288
	b. Stablemen	28	8	–	286
	c. Gardeners	5	–	–	–
	Total	823	236	353	287
3	Training-ships in the Thames:				
	a. "Warspite," of the Marine Society	201	51	–	254
	b. "Chichester," for destitute boys	7	3	–	429
	Total	208	54	89	260
4	Been at Sea or in Boats:				
	a. At sea	103	27	–	262
	b. Bargemen or watermen	7	3	–	429
	Total	110	30	47	273
5	No Occupation:				
	a. Came direct from school	66	25	–	362
	b. ,, ,, their homes	3			
	c. ,, ,, unions	5			
	d. ,, ,, Foundling Hospital school	2	3	–	375
	e. ,, ,, refuge	1			
	Total	77	28	33	364
6	Clerks in Offices	15	5	6	333
	Total for all Classes	2,333	745	1,000	319

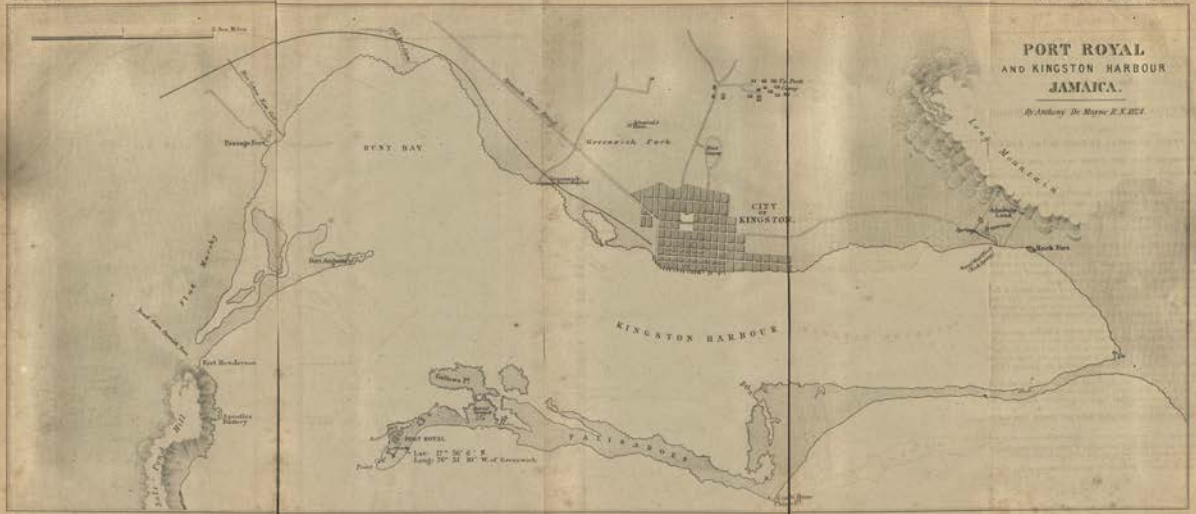
TABLE II.

CAUSES OF REJECTION IN NAVAL BOYS. Total Number Examined - - 2,333. Number Rejected - - 745.		Rejected.	
IN GROUPS.	IN CLASSES.	Number.	Per 1,000.
I. Constitution generally - -	1. Scrofula - - - - - - - -	41	17·57
	2. Phthisis - - - - - - - -	20	8·57
	Weak Constitution, arising from - 3. Other constitutional depravity	45	19·30
	Weak Constitution, arising from - 4. Unsound health - - -	21	9·00
	Weak Constitution, arising from - 5. Debility - - - -	20	8·57
	Weak Constitution, arising from - 6. Muscular tenuity - - -	8	3·43
	Weak Constitution, arising from - 7. Imperfect growth - - -	47	20·14
	8. Overgrowth, &c. - - - - -	14	6·00
II. Brain, Special Senses, and Speech.	9. Weak intellect - - - - -	9	3·85
	10. Subject to fits - - - - -	4	1·71
	11. Diseases of the eyes and eyelids - -	115	49·29
	12. „ „ ears, and deafness - -	18	7·72
	13. Impediment of speech - - - -	7	3·00
III. Nose and Mouth - -	14. Polypus and malformation - - -	5	2·15
	15. Diseased tonsils - - - - -	46	19·72
	16. Unsound teeth - - - - -	26	11·14
IV. Respiratory Organs - -	17. Diseases of heart and lungs (not phthisis) -	23	9·86
V. Chest and Spine - - -	18. Small or malformed chest - - -	70	30·00
	19. Malformed spine - - - - -	13	5·58
VI. Belly, Genitals, and Venereal	20. Hernia - - - - - - - -	11	4·71
	20. Laxity of abdominal rings - - -	17	7·28
	21. Hæmorrhoids - - - - - -	2	0·86
	22. Varicocele - - - - - - -	51	21·86
	23. Non-venereal affections of genitals - -	11	4·71
	24. Venereal affections - - - - -	8	3·44
VII. Bloodvessels - - -	25. Varicose veins - - - - -	11	4·72
VIII. Cutaneous System - -	26. Scars, wounds, &c. - - - - -	9	3·85
	27. Skin diseases - - - - - -	14	6·00
IX. Organs of Locomotion - -	28. Rheumatism, abscess, and necrosis - -	4	1·72
X. Defects in the Extremities -	29. Defects in upper extremities - - -	10	4·28
	30. „ lower „ - - -	45	19·30
	TOTAL - - -	745	319·33

TABLE III.

UNFITNESS of ARMY RECRUITS compared with NAVAL BOYS.

Class.	Total Number of Army Recruits examined - 20,410 „ „ Naval Boys „ - 2,333	Rejected per 1,000.		Excess per 1,000.	
		Army.	Navy.	Army.	Navy.
1	Scrofula	9·85	17·57	–	7·72
2	Phthisis	6·12	8·57	–	2·45
3	Other constitutional depravity	5·00	19·30	–	14·30
4	Unsound health	20·28	9·00	11·28	–
5	Debility	5·24	8·57	–	3·33
6	Muscular tenuity	25·72	3·43	22·29	–
7	Weak intellect	1·23	3·85	–	2·62
8	Diseases, &c. of the Brain and nerves	·24	1·71	–	1·47
9	„ „ Eyes and eyelids	43·22	49·29	–	6·07
10	„ „ Ears, and deafness	1·61	7·72	–	6·11
11	„ „ Nose and mouth	·83	2·15	–	1·32
12	„ „ Tonsils	–	19·72	–	19·72
13	„ „ Teeth	13·13	11·14	1·99	–
14	„ „ Heart and lungs (not phthisis)	29·69	9·86	19·83	–
15	Small or malformed chest, or curvature of spine	41·50	35·58	5·92	–
16	Impediment of speech	1·22	3·00	–	1·78
	Total for Upper Half of Body	204·88	210·46	61·31	66·89
17	Hernia	14·45	4·72	9·73	–
18	Lax abdominal rings, showing tendency to hernia	8·97	7·28	1·69	–
19	Hæmorrhoids	2·69	·86	1·83	–
20	Varicocele	26·55	21·86	4·69	–
21	Other affections of genitals, not venereal	4·31	4·70	–	·39
22	Venereal	16·56	3·44	13·12	–
23	Varicose veins	35·33	4·72	30·61	–
24	Cutaneous affections	7·96	6·00	1·96	–
25	Scars, wounds, &c.	12·84	3·85	8·99	–
26	Affections of organs of locomotion	3·04	1·72	1·32	–
27	All other diseases, &c.	3·91	–	3·91	–
28	Defects of the upper extremities	9·16	4·28	4·88	–
29	„ „ lower „	29·60	19·30	10·30	–
30	Imperfect development	–	20·14	–	20·14
31	Overgrown, unwieldy, &c.	–	6·00	–	6·00
	TOTAL	380·25	319·33	154·34	93·42


PORT ROYAL
AND KINGSTON HARBOUR
JAMAICA.
By Anthony De Mayne R.N. 1824.
HUNT BAY
Greenwich Park
CITY OF KINGSTON.
Long Mountain
Rock Fort
KINGSTON HARBOUR
Flat Marsh
Port Henderson
Apostles Battery
PORT ROYAL
Lat. 17° 56' 0" N.
Long. 76° 51' 30" W. of Greenwich
Point

Appendix, No. II.

NOTES UPON THE YELLOW FEVER EPIDEMIC

WHICH PREVAILED IN THE

ROYAL NAVAL HOSPITAL AT PORT ROYAL, JAMAICA,

During the latter part of 1866 and the year 1867;

Compiled from the Records of the Hospital and from Observation.

By JAMES JOHN LOUIS DONNET, Esq., M.D.,
Deputy Inspector General, R.N., &c. &c. &c., Royal Naval Hospital, Jamaica.

On the 27th of November 1866 the first case of yellow fever was admitted from the West Indian Squadron into the Royal Naval Hospital at Jamaica. Previous to this period no case had occurred for upwards of four years,* at which time eight cases of this disease were landed from H.M.S. Landrail for treatment.

Although during these years many cases of other forms of fever —remittent, intermittent, and the simple inflammatory type—were admitted, there was no one single case of yellow fever observed, so that an entire exemption from this fever was enjoyed by this establishment for that period.

In Kingston there was for the same period a similar immunity.

It was on the 14th of October 1866 that the first death from yellow fever for that year occurred in the wards of the public hospital of that city; the subject of it was a seaman landed from the ship "Jamaica," lately arrived from the island of St. Thomas (Virgin Islands), where yellow fever was prevalent.

Between the date of this death and that of the first admission into the Royal Naval Hospital (a space of forty-five days, during which time several cases had been observed in Kingston) Port Royal was entirely free.

Port Royal† is about four miles and a half distant from the city of

* A doubtful case was admitted into hospital in 1863; a midshipman from Her Majesty's ship Shannon, who died on the 17th December of that year.

† Latitude of Port Royal, 17° 56′ 6″ N.
Longitude of ditto 76° 51′ 10″ W. of Greenwich Observatory.

Appendix, No. II.

of Kingston. It is built on the westernmost point of a spit of sand, called the Palisades, which extends from the mainland in a westerly direction for the space of nine miles, and which, acting as a breakwater, forms the harbour of Kingston. The extreme end of this spit takes a south-westerly direction, and upon this bend Port Royal is built. The principal establishments are the Dockyard, the Naval Hospital, and the Military Garrison; the town of Port Royal is wedged in between these establishments.

Its population, numbering 2,504,* consists of Negroes, Sambos, Mulattos, Quadroons, and Mustees; the tenements are about 200, several of which are Negro yards densely populated.

Before its destruction by the terrific earthquake† of the 7th June 1692, Port Royal, from its being the rendezvous of the buccaniers, was famous for its vast wealth; but since the fire of the 9th January 1704, it has lost all appearance of what it formerly was, and has dwindled into a poor place, chiefly dependent upon the naval and military establishments for support.

The climate of Port Royal is hot; the temperature, however, is modified by the alternate prevalence of the land and sea breezes, which blow throughout the greater part of the year; the sea-breeze, or Doctor, as it is called, comes in about 10 a.m. and blows the whole day; the land-breeze sets in about sunset, and cools the air for the greater part of the night. The sea-breeze blows from the south-east, directly from the sea, and, fortunately, never from the burial-ground nor the mangrove bushes on the Palisades; whilst the land-breeze comes from a north-westerly direction, and, though blowing over swampy lowlands, is purified from all malarious influences by its passage across the arm of the sea which separates Port Royal from the swamps. By this beautiful provision the climate of Port Royal is greatly tempered, and thereby possesses an advantage over many other places situated in the same parallel of latitude.

Though the seasons may be traced, they have not the marked difference which characterises them in England. The distinction between summer and winter is to be found in the difference, though slight, of temperature; the average heat of summer being 83° Fahr., that of winter 79° Fahr., though some days in November and December have been as hot as any in July and August. The mean temperature throughout the year is 81°.

The range of the thermometer throughout the year in Port Royal is 72° and 98° Fahr.

The spring and autumn are distinguished by the fall of rain. The spring rains commence in April, continuing through May; the autumn rains commence about the first week of September, and sometimes last to the middle of November; it is during these last months that the rains are heaviest. Thunderstorms prevail during these rainy seasons.

The

* Census of 1861.

† A shock of an earthquake was felt in Port Royal on the 11th November 1867.

Appendix, No. II.

The soil of Port Royal consists of a grey gritty sand, and is not higher than 2½ feet above the sea-level at high-water mark; yet, in spite of its nature and its proximity to the salt water, several trees thrive well, especially the cocoa-nut tree, the tamarind, and the sea-grape.

The spit of sand, or Palisades, which forms the harbour of Kingston is thought to have a coral growth foundation; the geologist Barrett, who met his untimely death in the zealous pursuit of his profession, considered it to be one huge fan coral formation, upon which shingle, sand, and broken shells had settled.

There is no disease endemic in Port Royal; the fevers (not yellow) that fall under observation are contracted on the mainland, or are the effects of irregularities, indiscretions, or exposure to wet and cold. It has the reputation of possessing so good a climate that persons labouring under malarious and other diseases seek it as a sanatorium. The enthetic diseases so frequent, unfortunately, among the seamen of the squadron, are contracted from women who troop over from Kingston when a ship's company is given leave to.*

Yellow fever is only known to Port Royal when imported, and then only among the white population. The mass of the population is coloured, and though more subject than the white man to cholera and small-pox, is as a rule exempt from, or little liable to, this disease.

Port Royal is dependent upon sailing tanks for water, which is brought from Rock Spring, at the head of Kingston Harbour, a distance of about eight miles; no water fit for drinking is found in Port Royal, though there are some wells. On digging into the sandy soil along the Palisades to the depth of a few inches, fresh water is met with, suitable only for washing purposes. The water thus found can only be the rain water which has not yet mixed with the salt water beneath.

The night-soil and refuse from the houses are emptied at certain hours into the sea on the south beach; a public latrine has been lately built for the convenience of the inhabitants.

[redacted]Naval Hospital the sewage is collected in cesspools, or is to the sea by means of pipes; these, from want of inclina- re frequent cleansing. The cesspools are emptied at par- iods, or when required; disinfectants are largely used.

missions into the Naval Hospital for yellow fever, from 867 inclusive, are shown in Table I.†

ontagious Diseases Act has become law in the island of Jamaica 1867), and its operation is under consideration; once set properly to l materially diminish this class of disease, or at least assist in stamping ulent forms which it frequently assumes when implanted upon the by the dark race.

No. II. gives a more detailed account of the admissions between Novem- d December 1867.

TABLE I.

ADMISSIONS and DEATHS from Yellow Fever in the ROYAL NAVAL HOSPITAL, *Jamaica*, between the Years 1847 and 1867 inclusive.

MONTHS.	1847.		1848.		1849.		1850.		1851.		1852.		1853.		1854.		1855.		1856.		1857.		1858.		1859.		1860.		1861.		1862.		1863.		1864.		1865.		1866.		1867.	
	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.	Admissions.	Deaths.
January	2	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	–	–	–	–	4	–
February	1	1	–	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	8	5	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6	1
March	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	18	5
April	21	7	–	–	–	–	–	–	–	–	–	–	23	3	–	–	–	–	56	16	–	–	85	23	–	–	–	–	–	–	–	–	–	–	–	–	–	–	8	4
May	–	–	–	–	–	–	–	–	–	–	–	–	22	4	–	–	–	–	39	14	–	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6	3
June	7	–	–	–	–	–	–	–	–	–	–	–	15	2	–	–	–	–	49	5	–	–	2	1	–	–	–	–	3	15	–	–	–	–	–	–	–	–	7	1
July	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	22	8	–	–	–	–	–	–	1	1	5	1	8	6	–	–	–	–	–	–	–	–
August	1	–	–	–	–	–	–	–	–	–	–	–	1	1	–	–	2	2	8	4	–	–	–	–	–	–	–	–	2	1	–	–	–	–	–	–	–	–	–	–
September	4	2	–	–	–	–	–	–	–	–	–	–	–	–	25	3	1	–	1	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6	1
October	31	4	1	1	–	–	–	–	–	–	–	–	6	3	–	–	1	1	3	1	1	1	–	–	1	1	93	23	–	–	–	–	–	–	–	–	–	–	5	3
November	18	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	5	1	3	1	–	–	–	–	–	–	–	–	1	1	2	–
December	18	3	–	–	–	–	–	–	–	–	21	2	–	–	–	–	12	5	2	–	–	–	–	–	1	–	–	–	–	–	–	–	1	1	–	–	–	–	1	–
												2	67	13	25	3	16	8	194	54	1	1	88	25	7	2	98	26	50	17	8	6	1	1	–	–	–	–	9	8	63	18

– 27·3.

Revised and corrected by
Dr. *J. Horrocks*, Asst. Surgeon R.N.

TABLE II.

The ADMISSIONS into HOSPITAL for YELLOW FEVER between the 27th November 1866 and the 31st December 1867, were as follows:

MONTHS.	Total Admissions.	Officers.	Men.	Total Deaths.	Officers.	Men.
1866:						
November - - -	1	1	–	1	1	–
December - - -	8	–	8	7	–	7
1867:						
January - - -	4	1	3	–	–	–
February - - -	6	2	4	1	1	–
March - - - -	18	1	17	5	–	5
April - - - -	8	–	8	4	–	4
May - - - -	6	2	4	2	2	–
June - - - -	7	2	5	1	–	1
July - - - -	–	–	–	–	–	–
August - - -	–	–	–	–	–	–
September - - -	6	1	5	1	–	1
October - - -	5	2	3	3	2	1
November - - -	2	1	1	–	–	–
December - - -	1	–	1	–	–	–
TOTALS - - -	72	13	59	25	6	19

TABLE III. - - - - - - - - - - - - - -

A SUMMARY of the CASES of YELLOW FEVER admitted into the ROYAL NAVAL

No. of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on Duty.
1	Lieutenant Commanding -	30	H.M.S. Nettle - -	26th Nov. 1866.	27th Nov. 1866.	Rigors on the morning of the 26th November; much fever and prostration towards evening of the same day.	Severe frontal headache, slight loin pain, aching of limbs, heaviness of eyes, pulse 96, soft; nausea, no epigastric tenderness, tongue yellow furred; bowels frequently moved; spat or vomited a trace of blood.
2	Able-bodied Se man - -	24	H.M.S. Cadmus - -	9 Dec. 1866	10 Dec. 1866	Severe pyrexia - - -	December 10.—2nd Day. Supra-orbital pain; pain in back and legs; conjunctivæ yellowish, eyes injected; tongue moist, coated, and yellowish; bowels opened three times, stools neutral; pulse 84, temperature 104°, skin dry; frequent vomiting, matters vomited alkaline; urine acid, muddy, reddish yellow; bile and albumen in considerable quantity.

TABLE III.

HOSPITAL, JAMAICA, between the 27th November 1866 and the 31st December 1867.

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
3rd Day of Fever.—Headache, severe; frequent diarrhœa; bilious vomiting in forenoon; eyes conjested. 4th Day.—Diarrhœa; epistaxis; skin faintly yellow. 5th Day.—Headache more severe; much prostration; urine albuminous with much bile. 6th Day.—Skin and conjunctivæ of a deeper yellow; slight drowsiness; free perspiration; frequent micturition, with ardor. 7th Day.—Three copious liquid (port-wine-like) stools free of pain. 8th Day.—Epigastric tenderness; vomited clear fluid with brown flocculent matter (very acid); yellowness of skin and conjunctivæ diminishing; fluid chocolate stools in the forenoon, like currant jam at noon; black vomit at 4.30 p.m. 9th Day.—Hæmorrhagic diarrhœa (neutral action); yellowness decreasing; slight epistaxis; no delirium, but is drowsy and indisposed to speak. 10th Day.—Subsultus; epistaxis; hæmorrhagic stools; sudamina on brows; urine became solid with heat and nitric acid. 11th Day.—Profuse epistaxis, causing syncope; subsultus; fluttering pulse. Died at 4·45 p.m.	- -	6 December 1866 11th day of fever.	The "Nettle" had lately arrived from Morant Bay, where two cases of yellow fever had occurred, both terminating fatally. One of these cases was servant to Lieutenant Jenkins, the other was Staff Assistant Surgeon D'Arcy, who had attended the servant professionally. All three were living on shore at the temporary barracks. Yellow fever had prevailed among the shipping at Port Morant about three months before, but not whilst "Nettle" was there. The weather had been bad; only three days out of 40, as logged, could be called fine. Reported to have dug trenches round the barracks to draw off the water. (*See* Diagram, No. 1, at end of Appendix II.) POST-MORTEM APPEARANCES. Body muscular; not emaciated; rigor mortis; skin of a waxy yellow colour, of a deep blue in dependent parts; black vomit and air bubbles issuing from mouth and nostrils; bloody fluid from urethra; no petechiæ. *Abdomen.*—Several ounces of bloody serum in peritoneum; no peritonitis; intestines distended with air, and of a dark blue slate colour externally. Stomach contained several ounces of a dark sepia-coloured fluid, and a similar fluid extended along course of intestines; this fluid was readily washed off the mucous membrane of stomach and that of the first four inches of the duodenum, but in whole length of the intestines below this the mucous membrane was dyed black. *Liver.*—Of a uniform fawn colour; firm to knife. *Kidneys.*—Flabby; cut surface orange red. *Bladder* contained 10 ounces of highly acid and albuminous urine; its mucous membrane orange red. *Spleen.*—Pancreas; supra-renal capsules normal. MICROSCOPICAL APPEARANCES. *Urine.*—A few spermatozoa; columnar and scaly bladder epithelium; tube casts; no crystals. *Liver.*—An enormous number of free oil globules, from very minute size to 1-500th inch in diameter, obscuring cell structure; no reaction with iodine. *Black Vomit from Stomach*, acid; no trace of structure or blood globules; whole field showed very coarsely granular appearance of yellowish red matter (disintegrated blood).
11 Dec., 3rd Day.—Tongue moist, yellow at base; skin dry and pungent, headache, more severe; urine, acid, muddy; bile and albumen considerable. 12 Dec., 4th Day.—Headache less; slight yellowness of skin; frequent purging; black vomit frequent. 13 Dec., 5th Day.—Yellowness of skin well marked all over abdomen; much epigastric tenderness; frequent black vomit; much prostration; no urine passed for 24 hours. Noon.—Singultus; 1 oz. of urine passed with stool, highly albuminous; black vomit towards evening; respiration hurried; no delirium. 14 Dec., 6th Day.—Black vomit continued up to midnight, then passed off; a light form of delirium succeeded. Died at 1.30 a.m. of this day	- -	14 December 1866 6th day of fever.	The "Cadmus" to which ship this man belonged, had arrived in Port Royal from Cape Haytien, on the 21st November 1866, and was sent up to Kingston on the 3rd December 1866, for the purpose of giving leave to the men. Yellow fever was present among the merchant shipping laying at Kingston at the time the crew was given leave. The chaplain of this ship had attended Lieutenant Jenkins during his illness. (*See* Diagram, No. 2, at end of Appendix II.) POST-MORTEM APPEARANCES. Body muscular; no decomposition; skin and conjunctivæ intensely yellow; dependent parts dark blue. *Stomach* contained a small quantity of black vomit, acid re-action; mucous membrane slightly congested at its cardiac orifice. Intestines distended with flatus; the duodenum, jejunum, and upper part of ileum, full of black vomit; no congestion of mucous membrane of intestines. *Liver.*—Surface, normal; substance, one uniform dark fawn colour. Gall-bladder half full *Kidneys* congested. *Bladder* contained 2 oz. urine; yellow creamy matter on mucous membrane. MICROSCOPICAL EXAMINATION. *Liver.*—Large free oil globules. Numerous unchanged blood globules. Hepatic cells very indistinct.

TABLE III.—A SUMMARY of the Cases of Yellow Fever admitted into the Royal Naval

No. of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on Duty.
3	Ordinary Seaman - -	19	H.M.S. Cadmus - -	9 Dec. 1866	10 Dec. 1866	Pyrexia - - - -	December 10—2nd Day of fever. No headache; some tenderness at epigastrium; tongue moist, coated; clean at tip and edges. Skin hot and dry; has a chronic ulcer above inner ankle
4	Boy, first Class - - -	17	H.M.S Cadmus -	8 Dec. 1866	10 Dec. 1866	Severe Pyrexia - - -	December 10—3rd Day. Headache, loin pain; vomiting, epigastric tenderness; congested conjunctivæ; herpes labialis.

Hospital, Jamaica, between the 27th November 1866 and the 31st December 1867.—*continued.*

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
11 Dec., 3rd Day.—Bilious vomiting; frontal headache; urine neutral, phosphatic; no albumen, some bile; eyes clear. 12 Dec., 4th Day.—Says he is better; muddiness of conjunctivæ; no yellowness; vomited brownish fluid; urine contains a small quantity of albumen; about 20 oz. passed. 13 Dec., 5th Day.—Much yellowness of skin; vomited brown flocculent fluid; urine free; albumen in greater quantity; black vomit at noon; port-wine stool; black vomit frequent during evening; bloody discharge from ulcer. 14 Dec., 6th Day.—Violent delirium, frequent shrieking; black vomit very profuse; no radial pulse for several hours before death. Died at 1.25 a.m.	- -	14 December 1866 6th day of fever.	Was on leave in Kingston for 48 hours. He fell ill shortly after his return from leave. (*See* Diagram, No. 3, at end of Appendix II.) POST-MORTEM APPEARANCES. Intense yellowness of skin. *Abdomen.*—No meteorismus. *Liver.*—Congested. *Kidneys.*—Congested. *Stomach.*—Duodenum and upper part of jejunum full of jet black vomit; fluid in stomach, viscid in intestine. *Bladder.*—Distended. MICROSCOPICAL APPEARANCES. *Liver.*—Oil globules few; hepatic cells indistinct.
11 Dec., 4th Day.—Tongue moist, large, furred white; vomiting at night; conjunctivæ injected; herpes labialis; urine highly albuminous. 2.30 p.m.—Vomited watery fluid, with brown flocculent matter; four stools fæcal, acid. 12 Dec., 5th Day.—Yellowness of skin; tongue dry, beefy; seven stools; black vomit; eyes more congested; numerous faint blood corpuscules in vomit, with red, light yellow, granular matter; vomit of same character continued throughout the day, and escaped by jerks. Died at 3 30 p.m.	- -	12 December 1866 5th day of fever.	Was on leave in Kingston for 48 hours. (*See* Diagram No. 4, at end of Appendix II.) POST-MORTEM APPEARANCES. Yellowness more marked than in life. Rigor mortis, but not strong. *Abdomen.*—No meteorismus. *Stomach* contained over a pint of ink-black fluid; mucous membrane congested near cardiac and pyloric orifices; black vomit in duodenum and jejunum, gradually replaced in ileum by light grey loose fæcal matter; black matter removed by washing; mucous membrane of ileum and rectum much congested. *Liver* generally dark fawn, in some parts almost of a nutmeg appearance, much congested, not greasy to knife. *Kidneys* congested. *Bladder* contained ½ oz. muddy urine; mucous membrane somewhat congested. MICROSCOPICAL AND CHEMICAL EXAMINATION. Black vomit from stomach acid (not highly); no trace of bile by nitric acid test; no visible change by heat; with potash gives off ammonia; not decolorised by acids; boiled with nitric acid it forms a bright clear brownish solution; under microscope a few blood globules; much cylindrical stomach epithelium and reddish yellow amorphous matter. *Liver.*—Abundant free oil globules of all sizes.

TABLE III.—A SUMMARY of the Cases of Yellow Fever admitted into the Royal Naval

No. of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on Duty.
5	Gunner, Royal Marine Artillery.	26	H. M. S. Cadmus - -	10th Dec. 1866	11th Dec. 1866	Febrile symptoms of very considerable severity.	December 11.—2nd Day. Brought in a cot; rigors this morning; frontal headache; conjunctivæ injected; nausea; no epigastric tenderness; loin and limbs pain; tongue coated, yellow at base, clean at tip; no marked oppression.
6	Ordinary Seaman - -	19	H. M. S. Cadmus - -	10th Dec. 1866	11th Dec. 1866	Febrile symptoms - -	Rigor last night; walked up into ward; gait a little staggering; frontal headache; no loin or limb pain; no abdominal tenderness; tongue moist, clean, flabby; vomited all last night and to-day; skin dry; some febrile oppression.

Hospital, Jamaica, between the 27th November 1866 to the 31st December 1867—*continued.*

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
12 Dec., 3rd Day.—Feels better; no albumen nor bile in urine. 13 Dec., 4th Day.—More injection of conjunctivæ; epigastric tenderness; urine muddy, albuminous; trace of bile, acid. 14 Dec., 5th Day.—No headache; slept fairly; yellow tinge of skin and conjunctivæ. 15 Dec., 6th Day.—Restless; pain at epigastrium; herpes labialis; skin moist; three stools, light grey, flocculent; urine 40 oz., very dark, turbid, alkaline, much bile; albumen one third tube, crowded with densely granular casts; a few phosphates. 16 Dec., 7th Day.—Much prostration; no pain; skin very yellow; conjunctivæ golden; herpes hæmorrhagic; urine 40 oz., faintly acid; green colour with nitric, sulphuric, acetic, and hydrochloric acids; which was not so yesterday; only a few tubes, and those nearly hyaline. 17 Dec., 8th Day.—Insensible; yawning; swearing, and striking at head of bed; dysphagia; skin dry; coffee-ground vomit on sheets; slight epistaxis; pupils dilated; 40 oz. of urine drawn off by catheter; urine acid, specific gravity 1.015; albumen half tube. 4 p.m., stertor; 7 p.m., quite comatose. Died at 9.20 p.m.	- - -	17 December 1866 8th day of fever	Had returned from 48 hours' leave four days ago; felt unwell after returning from target practice the day before he was taken ill. (*See* Diagram, No. 5, at end of Appendix II.) POST-MORTEM APPEARANCES. Rigor Mortis, strong. Body muscular; yellowness of skin general, intense on face and chest; conjunctivæ golden yellow; no decomposition; much lividity of dependent parts; bloody sordes about nose. *Head.*—Calvarium adherent to dura mater; pia mater, pink congestion; arachnoid everywhere transparent; cerebral substance firm and white; no fluid in ventricles. About one drachm of serum at base, appeared to come from spinal canal. *Abdomen.*—Meteorismus of stomach and upper small intestines. No fluid in peritoneum. Several ounces of black vomit in stomach (acid), and in small intestines, gradually disappearing towards end of ileum, and replaced by a small quantity of dark grey semi-fluid matter. Near the commencement of ileum, a solitary lumbricus alive was found. Some scattered congested and hæmorrhagic patches found from duodenum to rectum, but surface generally normal, and not tinged by the black vomit. Cardiac and pyloric orifices of the stomach decidedly congested. *Spleen.*—Rather large, flabby, and soft. *Liver* of typical fawn colour, very full of blood. Gall-bladder one-third full. *Kidneys* much congested. *Bladder* contained 8 oz. of urine; its mucous membrane yellow and vascular. *Thorax.*—1 oz. clear yellow serum in pericardium. *Heart* rather large and flabby. *Lungs* both intensely congested (universally), but crepitant. Right lung adherent everywhere; the adhesions easily separated, but have not the appearance of recent ones. No fluid in cavity of pleuræ. MICROSCOPICAL AND CHEMICAL EXAMINATIONS. Serum from pericardium showed bile by nitric acid and chloroform tests. The black vomit from stomach; crowds of calumnar epithelium; reddish yellow amorphous matter. No blood globules. *Liver.*—Enormous number of large oil globules. *Heart.*—No appearance of fatty degeneration; muscular transverse striæ distinct.
12 Dec., 3rd Day.—Headache less; vomited four times; skin moist; slight incoherence; purging; urine acid, albuminous. 13 Dec., 4th Day.—Complains only of slight headache; much prostration; skin moist, scarcely any yellowness; minute true petechiæ on chest, near axillæ, abdomen, and thighs; tongue large, white and moist; tendency to vomiting. Noon: Obstinately resists food and medicine, struggling powerfully; dark drab flocculent sedes, urine passed with it. 7 p.m.: Delirium; retching but no vomiting; purging; swallows now readily food and draughts; skin dryish, not pungent. 14 Dec., 5th Day.—Violent delirium during night; getting out of bed; trying to climb out of window of ward; no black vomit or purging; took food well nearly to end. Died 6.45 a.m.	- - -	14 December 1866 5th day of fever.	Returned from 48 hours' leave in Kingston four days ago (7th December). (*See* Diagram, No. 6, at end of Appendix II.) POST-MORTEM EXAMINATION, at 11 a.m. Rigor Mortis. Body muscular; slight yellowness of conjunctivæ; very slight, if any, of skin. Petechiæ, as in life. No discoloration of dependent parts. *Abdomen.*—Organs in situ have a healthy appearance. No meteorismus. *Liver* large, congested, of a nutmeg appearance. Gall-bladder full. *Stomach* contained several ounces of a dark thin alkaline fluid, its mucous membrane universally and intensely congested. *Kidneys* congested, remarkable in shape, being very long and lobulated; in left pelvis of kidney, some yellow purulent looking matter was found. *Bladder.*—About 4 oz. urine; coats very thick; the same matter found in pelvis of kidney was found adherent to mucous coat of bladder. Intestines quite normal; no appearance of black vomit; contained normal looking chyme. MICROSCOPICAL APPEARANCES. *Liver.*—Oil globules numerous. Urine highly acid, albuminous. No pus globules in the purulent-looking matter, but abundant large nucleated columnar epithelium (ureter?) and much amorphous finely granular matter. No tubes found.

TABLE III.—A SUMMARY of the Cases of Fever admitted into the Royal Naval

No. of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on Duty.
7	Ordinary Seaman - -	20	H.M.S. Aboukir - -	13 Dec. 1866	19 Dec. 1866	Was put on the list on the 13th December, with hot skin, loin and limb pains, preceded by rigors. Yellow fur on tongue. Epigastric tenderness, constipated bowels, high coloured scanty urine, with slight remission, have been the symptoms observed to the day of admission into hospital.	December 19.—7th day. Frontal headache; pain extending down each lower jaw. Rachialgia. Slight epigastric tenderness; febrile oppression slight; no heaviness of eyes; skin dry; eyes clear; tongue moist, dirty yellow, much furred in centre, margin and tip red; thirst slight; bowels confined; says he has had no vomiting.

Hospital, Jamaica, between the 27th November 1866 and the 31st December 1867—*continued.*

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
20 Dec., 8th Day.—Slept badly; more oppression; less headache; no epigastric tenderness; skin moist; one scanty loose brown sedes. Vesp.: Incoherent since noon; getting out of bed; pupils dilated; face flushed pink; urine acid; no bile; no albumen. 21 Dec., 9th Day.—Pupils contracted, but act; is quiet, but somnolent and incoherent; no yellowness of skin or conjunctivæ; skin almost normal to touch; sordes on lips. 22 Dec., 10th Day.—Looks clearer; conjunctivæ natural and pupils normal; answers rationally; dark brown sordes on tongue; skin dryish; faint circular purplish spots (about a quarter of an inch in diameter) on chest, abdomen, and thighs, which do not disappear on pressure; one thin brown fæcal stool; urine pale, not albuminous. 23 Dec., 11th Day.—No headache; general abdominal tenderness; skin dryish. Noon.: Perspiring freely. Vesp.: Will not answer; twitching of hands; skin dry; has taken his food well; insomnia; urine not albuminous; 22 oz. of urine drawn off by catheter. 24 Dec., 12th Day.—Insomnia; singing, and catching at objects in the air; pupils dilated; skin warm and moist; face much flushed; 32 oz. of urine drawn off by catheter. Vesp.: Delirium; singing hymns; insomnia; pupils normal; one sedes; skin dry; perspiration on face; urine pale, faintly acid, turbid; specific gravity, 1·012. 25 Dec., 13th Day.—Comatose, but can swallow; struggling with hands; pupils contracted; sordes on lips; threw up a little blood; meteorismus; the purple spots more distinct; catheter (12 oz.); urine, specific gravity, 1·020; faintly acid; no bile; phosphatic and albuminous, 1-8th tube 11 a.m.: Coffee-ground vomit on pillow; quite comatose; stertor; left pupil contracted, right normal; no yellowness. Died at noon.	- -	25 December 1866 At noon, and on the 13th day of the fever.	This man had been on leave at Kingston four days previous to falling ill. (*See* Diagram, No. 7, at end of Appendix II.) POST-MORTEM APPEARANCES. Rigor mortis not strong; no decomposition; no yellowness of skin or conjunctivæ, and but slight lividity; purple spots barely visible. *Head.*—Much serum in scalp; pia mater congested; arachnoid clear, except along each side of mesial line of cerebellum, medulla oblongata, and pons, where it was semi-opaque; lateral ventricle, full of serum; 1½ ounce of serum at base; puncta cruenta. *Thorax.*—Several ounces of bloody fluid in right pleura; in left a quantity of black vomit, which had escaped from a vent or opening in œsophagus, an inch above diaphragm; no way of accounting for this as a post-mortem accident. *Pleuræ*, healthy. *Lungs*, crepitant, but very full of dark blood, especially in superior and posterior lobes. *Heart* rather large, flabby, fatty substance encroaching on muscular; interior of heart of a deep mahogany colour, nearly black on valves; interior of aorta as low down as diaphragm, bright scarlet; soft black clots in right ventricle; blood, when exposed in a thin layer, was seen to become bright scarlet; 1 oz. serum in pericardium; large tubercular gland at root of right lung; no trace of tubercles in lungs. *Abdomen.*—Some meteorismus; a few ounces of serum in peritoneum; no peritonitis. *Stomach.*—Several ounces inky-black vomit; much vascularity of mucous membrane, limited to rather less than cardiac half, and abruptly limited by a curved line, the circumference of a circle of which cardiac orifice occupied centre. *Duodenum* intensely congested; contains dark green grumous matter; a few scattered congested patches. *Ileum* contained a large quantity of greenish watery matter; Peyer's patches very distinct, and very long, measuring 3¾ inches in length; on only one a white elevation, about quarter of an inch in diameter, with smooth excavated summit; it looked like a cicatrized ulcer. About nine inches from cæcum a diverticulum 1½ inch long, as shown by Diagram. (*See* Diagram, No. 7, at end of Appendix II.) *Large Intestines.*—Ascending colon much injected, but no extravasation. Along whole course of rectum many oval or circular sharply defined ulcers (largest half an inch, the average quarter of an inch); no surrounding vascularity; they looked as if punched out of the mucous membrane; general arrangement transverse. *Bladder.*—Four ounces urine; considerable sediment of pus; pus seen flowing freely from urethra into bladder; mucous membrane very vascular. *Kidneys*, dark, full of blood. *Liver*, flabby; structure, normal; gall-bladder 2 drachms of bile of deep orange-red colour; spleen, normal; exposed surface of section after a few minutes became much lighter in colour, somewhat pink. MICROSCOPIC AND CHEMICAL EXAMINATION. *Urine*, acid, bright when filtered, but even then with heat and nitric acid 1-8th albumen; sediment consists of pus corpuscles, columnar epithelium, and abundant spermatozoa; no trace of casts; black vomit (from pleura), acid; no trace of blood globules; epithelial debris, reddish-yellow amorphous matter; torulæ; no bile by nitric-acid test. *Liver.*—No trace of oil globules; hepatic cells quite distinct and normal. *Heart.*—In most of the fibres striæ seen, even defined, but in some indistinct; and minute bright oil particles seen extending up in a longitudinal series between the fibrillæ. *Remarks.*—This case is a doubtful one. The absence of albumen and bile in urine; the state of liver, and no appearance of yellowness of skin, would seem to confirm this doubt. It was admitted as a case of yellow fever, and is therefore recorded.

TABLE III.—A SUMMARY of the Cases of Yellow Fever admitted into the Royal Naval

No. of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on duty.
8	Able-bodied seaman - -	23	H.M.S. Cadmus - -	12 Dec. 1866	12 Dec. 1866	Strongly marked febrile symptoms this morning (12 Dec., day of admission).	12 December.—1st Day. Severe headache; rachialgia; pain in limbs; bowels opened once last night; tongue thickly coated white; skin moist; slight epigastric tenderness; conjunctivæ natural in colour.
9	Corporal, Royal Marines -	26	H.M.S. Nettle - -	16 Dec. 1866	21 Dec. 1866	Severe frontal headache and great heat of skin.	21 December.—6th Day. Six days ill. Illness began with rigor, debility, anorexia; thirst; diarrhœa last three days; five watery stools to-day; herpes labialis; catarrhal conjunctival congestion; skin cool and moist to touch; has the appearance of a man bordering upon delirium tremens.

Hospital, Jamaica, between the 27th December 1866 and the 31st November 1867—*continued*.

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
18 Dec., 2nd Day.—Headache; insomnia; eyes congested; no prostration; skin moist; vomited brown flocculent matter; no yellowness of skin; tongue white; skin deep dusky red; urine acid, pale, bright; no albumen; no bile. 14 Dec., 3rd Day.—Less headache; no vomiting. 15 Dec., 4th Day.—Slight brow headache and loin pain. Vesp.: sweating; urine free and clear, no albumen, no bile; deposit of uric acid. (Numerous large and small crystals under microscope.) Pulse 56, irregular. 16 Dec.—Some heaviness of eyes and across epigastrium. 17 Dec.—Tongue cleaner; skin moist; sweating freely. 18 Dec.—Convalescent. Discharged cured 27 December.	27 Dec. 1866	- - -	Admitted as yellow fever; symptoms not those of yellow fever. (*See* Diagram, No. 8, at end of Appendix II.)
22 Dec., 7th Day.—Felt cold all night; aching pains down outside both thighs; yellowness of skin and conjunctivæ; the latter are now universally congested; fœtid breath; tongue red at tip and edges; no headache; no sleep; oppression; very small quantity of urine passed within the last three days; pulse weak; skin quite cool and moist to touch; vomited tea mixed with a little brownish mucus at noon, and in the evening vomited dark drab flocculent matter; some dysphagia; urine (only 5 drams) syrupy; very dark, acid; nearly solid with heat; much bile; (no green with acetic acid); abundant, large, densely granular casts; large colourless spherical cells containing oil globules; pus cells. 23 Dec., 8th Day.—Slight temporary incoherency; restless and anxious; pupils normal; pulse compressible; skin cool and moist, very yellow, also conjunctivæ; tongue less foul, very red, still moist; vomited brownish flocculent matter; general diminution of temperature (Axilla 98°; Rectum 99° F.) Singultus; herpes hemorrhagic. 24 Dec.—Delirium during night; difficult to restrain in bed; pulse weak; no vomiting; skin now warm to hand for first time (98°); one solid chavey stool, nearly white; about 3 oz. urine in stool; nearly comatose, but when roused has a scared appearance; flapping of cheeks; on attempting to introduce a catheter, a violent epileptic convulsion came on, lasting about two minutes; he became pulseless, but pulse returned faintly in wrist just before death, which occurred a few minutes after the fit; during fit pupils normal, but immediately after death widely dilated; no urinous smell observed during illness. Died at 8.15 a.m.	- -	24 Dec. 1866 8.15 am., 9th day of fever.	This man stated that when in Kingston, on the 14th December he associated and lodged with some merchant seamen belonging to a ship, part of whose crew were in Kingston Hospital with yellow fever. (*See* Diagram, No. 9, at end of Appendix II.) POST-MORTEM APPEARANCES. 24 Dec.—10.30 a.m. Strong rigor mortis; right thumb clenched into palm of hand; conjunctivæ lemon yellow; general yellowness of trunk and face; commencing lividity of depending parts; pupils normal. *Abdomen.*—General mucous engorgement; no fluid in peritoneum; stomach nearly full of sepia-coloured fluid; its mucous membrane quite pale; intestines a little green externally; duodenum contained normal-looking chyme; jejunum and ileum dark sepia-coloured grumous matter, which gradually disappeared in lower part of ileum; a few small scattered congested patches. *Liver.*—Full of blood; of one uniform fawn colour throughout; gall-bladder, 2 drams thick dark bile; spleen firm, colour light. *Pancreas.*—Normal; kidneys weigh 9 oz. each, very firm and dense; only two pyramids seen on section, one at each end, with only faint traces of central ones. *Bladder* contained 6 drams urine, mucous coat orange. A very large amount of fluid blood escaped on dividing vena cava inferior, which coagulated into a soft gelatinous clot. *Lungs.*—Healthy. *Heart.*—Uncontracted; no clots. *Pericardium.*—1 oz. serum. *Brain.*—Arachnoid over upper surface of hemispheres milky opaque; brain substance firm and healthy; 2 drams serum in each lateral ventricle; 2 oz. serum at base of cranium. urinous smell about body. MICROSCOPICAL AND CHEMICAL EXAMINATION. Urine from bladder blood red, highly albuminous, bile abundant; no green produced with acetic, &c. acids; not very muddy; deposits a sediment consisting of crowds of blood globules, large densely loaded granular casts, epithelial debris and numerous spermatozoa. Black vomit from stomach acid; divides into smoky brown fluid and a dark chocolate flocculent deposit, which consists of abundant columnar epithelium; reddish-yellow amorphous matter; no trace of blood globules. *Liver.*—An infusion gives no trace of bile with nitric acid tests; abundant free oil globules; cells very obscure. *Heart.*—Muscular fibre showed transverse markings distinct. *Serum* from pericardium contained bile; crystals of nitrate of urea produced by usual processes.

TABLE III.—A SUMMARY of the Cases of Yellow Fever admitted into the Royal Naval

No. of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on duty.
10	Able-bodied seaman - -	25	H.M.S. Aboukir - -	5 Jan. 1867	9 Jan. 1867	Headache and purging; violent rigor; prostration; abdominal pains; some vomiting.	January 9.—5th Day. Frontal headache; severe rachialgia; pain in limbs; no epigastric tenderness; conjunctivæ slightly injected; skin dry; herpes labialis; tongue yellow furred; insomnia; some pain in chest; no cough.
11	Commander - - - -	38	H.M.S. Steady - -	13 Jan. 1867	17 Jan. 1867	Feverish symptoms; headache; prostration; bilious vomiting.	January 17.—5th Day. Headache; neuralgia in right cheek; slight epigastric tenderness; no loin or limb pain; insomnia; vomited once since admission; bloody streaks in vomit; tongue thickly coated, yellow; skin dry; conjunctivæ yellowish.

Hospital, Jamaica, between the 27th November 1866 and the 31st December 1867—*continued*.

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
10 Jan., 6th Day.—Very little sleep; yellowness of conjunctivæ, none of skin, which is dry; tongue thick, dirty brown fur in centre, red and moist underneath and at tip and edges; vomited slate green watery fluid, with green flocculi at bottom; frequent dark liquid stools; no headache; pain in loins and limbs; slight epigastric tenderness; is quite sensible and there is no oppression; herpes extends right across lips; skin natural to touch; urine very acid, specific gravity 1·020; turbid, reddish yellow; no bile; a few medium sized finely granular tube casts. 11 Jan., 7th Day.—Expression improved; skin dry, more pungent to touch, yellowish; brown flocculi in the utensil, vomited last evening; slight epistaxis in the night; gums raised, spongy and bleeding; herpes labialis hæmorrhagic; urine, 1·020, very high coloured; trace of bile and albumen; tube casts as yesterday; a few minute oxalates; no green with acids. 12 Jan., 8th Day.—Had not much sleep from the bleeding from gums, which continues (about 10 oz. of dark clotted blood in pot); bloody sordes about lips, teeth, and gums; no vomiting; one stool; faint yellowness of skin of trunk; urine (26 oz.) 1·018, very dark, clear; more bile than yesterday; albumen ¼ tube. 13 Jan., 9th Day.—Bleeding from gums continues; yellowness of face and chest more distinct; urine less acid, 1·014, turbid, more bile; albumen ½ of tube; very transparent granular and epithelial casts. 14 Jan., 10th Day.—Yellowness of skin well marked on chest; of conjunctivæ more intense. Hæmorrhage from mouth ceased last night; urine 1·020 (40 oz.) acid; more bile; albumen half of tube; tube casts, blood discs; on standing gives a green colour with sulphuric, but not with hydrochloric or acetic acids. 15 Jan., 11th Day.—Slept well; skin harsh, greasy; sweated a great deal after a vapour bath had been administered; urine (30 oz.,) as dark as porter; bile, albumen, and tubes, as yesterday; very few blood discs, green colour, as yesterday. 16 Jan., 12th Day.—Skin of chest and conjunctivæ very yellow; urine, 1·016; albumen diminishing. 17 Jan., 13th Day.—Yellowness diminishing; albumen less than 1-3rd of tube. 31 Jan.—Was discharged, cured, to his ship; up to the 20th January the albumen decreased daily; no trace found on the 20th; the yellowness of skin gradually disappeared, though that of conjunctivæ was not entirely gone when he was discharged.	31 Jan. 1867	- - -	Had been at Kingston, but states never to have left his boat. (*See* Diagram, No. 10, at end of Appendix II.)
18 Jan., 6th Day.—Moist creamy tongue; retching, but no vomiting; slept ill; vomited clear watery fluid, like saliva; several dark bilious stools; jactitation; much limb pain; skin moist; urine normal. 19 Jan., 7th Day.—Vomiting continues; clear watery fluid; urine 1·012, yellow, turbid, alkaline, slightly phosphatic; no albumen; trace of bile. 20 Jan., 8th Day.—Purging and vomiting ceased; some nausea; thick yellow fur in centre of tongue, its tip and edges red; conjunctivæ posteriorly are of a deep orange-red; albumen, 1-16th. Vesp.: skin quite normal; vomited clear acid fluid, containing black flocculi (altered blood discs, red colouring matter, and fibrine). 21 Jan., 9th Day.—Slept fairly; perspired freely all night, skin becoming yellow; urine less albuminous, 1-20th. 22 Jan., 10th Day.—Nausea, with some retching; no vomiting; slept all the forenoon; urine 1·015; albumen 1-8th; total absence of chlorides. 23 Jan., 11th Day.—Tendency to sleep; urine 1·008; albumen 1-12th. 24 Jan., 12th Day.—Yellowness of skin well marked. 25 Jan., 13th Day.—Urine alkaline, 1·018; albumen 1-10th; trace of chlorides; convalescing. 2 Feb.—Dicharged for mountain air; the albumen in urine diminished; no trace on the 31st January; skin and conjuctivæ still yellow.	2 Feb. 1867	- - -	Frequently in Kingston. (*See* Diagram, No. 11, at end of Appendix II.)

TABLE III.—A SUMMARY of the Cases of Yellow Fever admitted into the Royal Naval

No. of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on duty.
12	Private, Royal Marines -	25	H.M.S. Steady - -	22 Jan. 1867	25 Jan. 1867	Suffering from feverish symptoms for the last three days.	January 25.—3rd Day. Severe brow pain; pain in loins and limbs; pain in epigastrium; tongue moist, coated; conjunctivæ yellowish.
13	Sailmaker - - - -	40	H.M.S. Steady - -	24 Jan. 1867	25 Jan. 1867	Rigors on 24th January; headache; vomiting.	January 25.—2nd Day. Vomiting, flocculi; frontal headache; supra-orbital pain; epigastric tenderness; conjunctivæ injected and yellowish; passed 20 oz. of urine.

Hospital, Jamaica, between the 27th November 1866 and the 31st December 1867—*continued*.

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
26 Jan., 4th Day.—No sleep; no vomiting; skin pungent; vomited towards evening (ingesta). 27 Jan., 5th Day.—Frontal pain severe; bitter vomiting this morning; white moist tongue, with red edges; skin dryish; eyes congested; no albumen or bile in urine. 28 Jan., 6th Day.—Less headache; loin and limb pain; vomited this morning (very bitter); skin dry; urine 1·020; albumen 1-5th; no bile; trace of chlorides. 29 Jan., 7th Day.—Vomited watery fluid, with a little florid blood; no yellowness of skin or conjunctivæ, but latter much injected; bowels acted twice. 30 Jan., 8th Day.—Slept well; trifling headache; loin pain severe; hæmorrhage from gums; vomited twice, black; matters mixed with blood from gums and wine which he has taken; skin harsh, greasy; much fœtor of breath; urine 1·020 acid; albumen 1-4th; trace of bile; mere traces of chlorides. 31 Jan., 9th Day.—Sweated in the night, but now skin is rather harsh; tongue very red, moist; hæmorrhage very free, comes apparently from dental margin; gums spongy; no vomiting; the blood from mouth not black; urine alkaline; albumen 2-3rds; more bile; chlorides absent. 1 Feb., 10th Day.—Bleeding from gums, pharynx, and tonsils severe last night; checked by swabbing with tincture perchlor. ferri, and the internal administration of gallic acid; urine as yesterday, with a trace of chlorides. 2 Feb., 11th Day.—Bleeding diminished; skin quite moist; urine very acid, 1·022; much bile, red, slightly turbid; albumen one-half; chlorides absent; gallic acid present. 3 Feb., 12th Day.—No return of hæmorrhage; yellowness of skin and conjunctivæ; tongue inky black, most clean at tip; urine 30 oz., very dark, 1·022, as yesterday; green colour, with acetic acid; very delicate hyaline and epithelial casts. 4 Feb., 13th Day.—Yellowness of skin more marked; urine 35 oz., very dark; albumen 1-4th; chlorides returning. 6 Feb., 15th Day.—Yellowness intense. 8 Feb., 17th Day.—Pulse 45, irregular; convalescing; no albumen in urine; chlorides very abundant. 9 Feb., 18th Day.—Pulse 41; discoloration disappearing.	22 March 1867	- - -	Denies having been to Kingston. (*See* Diagram, No. 12, at end of Appendix II.)
26 Jan., 3rd Day.—Vomiting, clear watery fluid, very acid; no bile; contains much light brown flocculent matter, and some black specks. Urine, specific gravity 1·018, acid; no bile; no albumen; plenty of chlorides. 28 Jan., 5th Day.—No complaint; slight yellowness of conjunctivæ; urine very alkaline; specific gravity 1·004, offensive; no bile; no albumen.	22 Feb. 1867 -	- - -	(*See* Diagram, No. [illegible], at end of Appendix II.)

TABLE III.—A SUMMARY of the Cases of Yellow Fever admitted into the Royal Naval

No. of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on duty.
14	Able-bodied seaman - -	20	H.M.S. Aboukir - -	29 Jan. 1867	1 Feb. 1867	Rigors on the 28th; frontal headache; loin pain; epigastric tenderness; hot dry skin; white tongue; vomited last night, streaks of blood; urine albuminous.	1 February.—4th Day. Pain in loins, legs, and abdomen; skin moist; conjunctivæ congested; no discoloration; tongue yellow in centre, clean at tip and edges; three sedes; vomited acid mucous fluid; slight hæmorrhage from gums.
15	Clerk - - - - -	-	Royal Naval Dockyard -	8 Feb. 1867	11 Feb. 1867	Headache, general languor; conjunctivæ slightly congested; vomiting; distension of abdomen; insomnia; light-headedness; scanty urine, normal.	11 February.—4th Day. Heaviness of head; eyes intensely injected and yellow posteriorly; herpes labialis; nausea this morning; clear in intellect; some red spots on wrists and back, which disappear on pressure; tongue dry, brownish in centre; some tendency to diarrhœa; acid odour from skin and breath.

Hospital, Jamaica, between the 27th November 1866 and the 31st December 1867—*continued.*

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
2 Feb., 5th Day.—Complains only of abdominal pain; tongue moist, red at edges; vomited ingesta; urine acid; albumen ½; trace of bile; no chlorides. 3rd Feb., 6th Day.—Doing well; gums sore and spongy, but no hæmorrhage; urine very acid, 1·022; albumen ½; no chlorides; of a bright yellow colour. 6th Feb.—Convalescing; albumen 1-16th; urine neutral, 1·012; chlorides normal. 8th Feb.—Quite convalescent; chlorides abundant in urine; no albumen.	21 Feb. 1867	- - -	(*See* Diagram, No. 14, at end of Appendix II.)
12th Feb., 5th Day.—Slept fairly; purged twice; skin soft; tongue moist, cleaner; urine acid, 1·013; albumen 1-8th; bile; scanty chlorides. 13th Feb., 6th Day.—Slept fairly; conjunctivæ more yellow; skin dryish, greasy, peculiar acid smell; tongue very foul; urine 1·020; albumen 1-7th of tube; bile increasing; chlorides less; medium size granular and epithelial casts, not very numerous; triple phosphates abundant. 15th Feb., 8th Day.—Tongue drier, browner; skin yellow; eyes much congested and yellow; at noon vomited some clear fluid, with specks of florid blood; purged twice by medicine administered; urine alkaline, 1·021; albumen 3-5ths. 16 Feb., 9th Day.—Tongue dry, reddish brown, red at tip; urine acid, 1·020; albumen ½. 17 Feb., 10th Day.—Gums soft, slightly swollen; tongue moist, cleaner, not so red at tip; urine acid, 1·020; albumen 1-3rd; chlorides normal. 18 Feb., 11th Day.—Colour of eyes and skin deeper; urine 1·015; albumen 1-6th. 24th Feb.—The yellowness of eyes and skin are not diminished; the albumen diminished in quantity daily, from 1-6th to 1-12th, 1-18th, 1-20th, until scarcely a trace was found yesterday, disappearing entirely to-day; is now convalescent.	14 Mar. 1867	- - -	(*See* Diagram, No. 15, at end of Appendix II.)

TABLE III.—A SUMMARY of the Cases of Yellow Fever admitted into the Royal Naval

No. of Case.	Quality.	Age.	Ship's Name or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on duty.
16	Assistant Surgeon - -	32	Royal Naval Hospital -	16 Feb. 1867	16 Feb. 1867	- - - - -	- - - - -
17	Stoker - - - -	37	H.M.S. Nettle - -	17 Feb. 1867	22 Feb. 1867	Suffering from fever for the last five days; much prostration; irritability of stomach.	22 Feb., 6th Day.—Headache; loin and limb pains; vomited this morning and since admission; gums soft, bleeding; conjunctivæ yellowish; no epigastric tenderness; urine acid, 1·020; albumen 1-6th; bile in large quantity; chlorides scanty.

Hospital, Jamaica, between the 27th November 1866 and the 31st December 1867—*continued.*

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
16 Feb., 1st Day.—Severe headache, and pain in back extending down the thighs; occasional chills along spine; no epigastric tenderness; nausea, but no vomiting; tongue slightly coated, moist; bowels confined; mouth clammy; made water several times to-day; urine normal; towards evening vomited; is restless; abdomen feels distended. 17 Feb., 2nd Day.—Less pain of head and back; bowels opened by medicine; vomited three times; bilious, alkaline; skin moist; tongue more coated, yellow; insomnia; urine pale, acid, 1·004; no albumen in bile; chlorides scanty; skin dry and pungent towards evening. 18 Feb., 3rd Day.—Skin dry; slept well; conjunctivæ injected; no yellowness; urine acid, 1·002, very pale; some urine passed later, had a higher specific gravity, 1·014, and contained albumen 1-8th of tube, with a trace of bile. 19 Feb., 4th Day.—Some diarrhœa during the night; tongue thickly coated white, and moist; no headache; slight yellowness of conjunctivæ; urine acid, 1·014; albumen 1-3rd of tube; bile increasing; chlorides scanty; faintness after coming from stool. 20 Feb., 5th Day.—Skin yellowish; conjunctivæ congested, deep yellow; nausea, no vomiting, with a feeling of rawness along course of œsophagus and in stomach, with a sinking sensation in stomach; urine acid, 1·008; albumen 1-3rd; bile increasing in quantity; urine gives a green colour, with all the acids. 21 Feb.—Sleep with difficulty obtained; skin of a deeper yellow; conjunctivæ very yellow; less rawness of stomach and œsophagus, but some of nose and mouth; urine acid, 1·011; albumen 1-3rd; more bile. 22 Feb.—Had no sleep; the raw feeling more complained of; urine acid, 1·006; albumen 1-3rd; hiccough at 3 p.m., was relieved by chloroform, but returned at 7 p.m., and continued till 9 p.m.; constantly picking and rubbing his neck. 23 Feb.—Hiccough ceased at 9 p.m. yesterday; he fell asleep and slept till midnight, and again slept till 3 a.m.; skin of a deeper yellow; tongue brown in centre, clean at tip and edges; no hiccough; is slightly incoherent; at 4 p.m. vomited about a pint of black vomit without effort; at 7 p.m. passed two dark-coloured stools. 24 Feb.—No sleep; incoherent; two black tarry stools during the night; skin dry; no vomiting; hiccough returned at 9 p.m. last night, and lasted till two this morning. 11 a.m., black vomit spirted out clear of bed. 2 p.m., picking of bedclothes; 6 p.m., passed a stool in bed; picking of bedclothes; subsultus; urine acid, 1·012; albumen 2-5ths. 25 Feb.—At 4 a.m. quite unconscious; subsultus and hiccough severe. Died at 9·18 a.m.	- -	25 February 1867 10th day of fever.	In zealous and constant attendance upon the yellow fever cases in hospital. (*See* Diagram, No. 16, at end of Appendix II.)
23 Feb., 7th Day.—Insomnia; vomited during night; tongue slightly coated; spat up some blood; skin moist; urine acid, 1·020; albumen ½; bile increasing. 24 Feb.—Sleep disturbed; talks incoherently; spat up a good deal of blood; epistaxis; tongue almost clean; skin moist; urine acid, 1·016; albumen ½; bile as yesterday; chlorides absent; no green with acids. 25 Feb.—Less spitting of blood; incoherent; pulse irregular; no urine passed in sufficient quantity for examination. 26 Feb.—Gums very soft; tongue clean, less red; slight incoherence; urine 1·015; albumen 2-3rds. 28 Feb.—Slept well; is weak; urine alkaline; albumen 1-15th. 1 Mar.—Convalescent; no albumen.	28 Mar. 1867 - - -		(*See* Diagram, No. 17, at end of Appendix II.)

TABLE III.—A SUMMARY of the Cases of Yellow Fever admitted into the Royal Naval

No. of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on duty.
18	Stoker	24	H.M.S. Nettle	18 Feb. 1867	22 Feb. 1867	Suffering from feverish symptoms since the 18th February.	22 February.—5th Day. Headache; rachialgia; nausea; some epigastric tenderness; conjunctivæ yellowish; vomiting; tongue thickly coated, yellowish; skin dry; urine acid, 1·020; albumen, ½; bile abundant; chlorides scanty; no green with acids.
19	Able-bodied seaman	21	H.M.S. Nettle	26 Feb. 1867	28 Feb. 1867	Fever for the last three days; chills on the 26th.	28 February.—3rd Day. Headache; rachialgia; epigastric tenderness slight; eyes congested; skin dry; tongue coated white, moist; urine acid, 1·015; no bile; no albumen; chlorides natural.
20	Ship's Steward's Assistant	26	H.M.S. Aboukir	3 Mar. 1867	5 Mar. 1867	Feverish symptoms, with much irritability of stomach; frequent vomiting.	5 March.—3rd Day. Headache; loin and limb pain; some epigastric tenderness; vomiting; some yellowness of eyes; tongue coated white; skin cool to touch, and moist.

Hospital, Jamaica, between the 27th November 1866 and the 31st December 1867—*continued.*

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
23 Feb., 6th Day.—Vomiting during night, ingesta; spat up some blood; urine acid, 1·024; albumen, 2-5ths; chlorides absent. 24 Feb., 7th Day.—Vomited about 8 oz. of black vomit, and has spat up some florid blood; gums soft, bleeding; skin and eyes yellow. 25 Feb., 8th Day.—Gums bleeding; albumen, 2-5ths; no chlorides. 26 Feb., 9th Day.—More yellowness of eyes and skin; no pains; skin moist; albumen 2-5ths. 27 Feb., 10th Day.—Tongue red at edges, brown in centre; no bleeding; urine acid, 1·015; albumen 1-3rd; chlorides increasing. 1 Mar.—Slight yellowness of skin; trace of albumen; chlorides natural; feels well; enters into convalescence.	26 Mar. 1867	- - -	(*See* Diagram, No. 18, at end of Appendix II.)
1 Mar., 4th Day.—Epistaxis; tongue moist; skin moist; vomited once; urine acid, 1·016; albumen 1-12th; bile in small quantity; chlorides diminished in quantity. 2 Mar., 5th Day.—Conjunctivæ slightly yellow; skin yellowish; tongue coated white; severe rachialgia; vomited. 3 Mar.—Vomited some serous fluid with dark flocculi; pain of back severe; skin soft; no headache.; urine acid, 1·014; albumen 1-6th; chlorides scanty. 4 Mar.—Eyes and skin of a deeper yellow; no return of vomiting; eructations; urine, 1·015; albumen 1-6th; more bile. 5 Mar., 8th Day.—Less complaint; some sore throat; urine acid, 1·012; albumen 1-5th; contains portions of large granular tube casts. 7 Mar.—Eyes and skin of a deeper yellow; no pain; albumen, 1-7th. 11 Mar.—Convalescent.	28 Mar. 1867	- - -	(*See* Diagram, No. 19, at end of Appendix II.)
6 Mar., 4th Day.—Vomiting frequent; slept badly; some epigastric pain; urine acid, 1·019; albumen ¼; acetic acid changes the urine to a greenish yellow. 7 Mar., 5th Day.—Yellowness of skin; eyes deeper yellow; vomited half pint of serous fluid containing dark flocculi; tongue red and furred; urine acid, 1·020; albumen, 2-5ths; some granular tube casts and oil globules. 8 Mar., 6th Day.—Insomnia; yellowness of eyes and skin deeper; vomited more fluid containing dark flocculi; urine acid, 1·016; albumen 2-3rds; bile in large quantity; chlorides scanty. 9 Mar., 7th Day.—Headache less; no vomiting; but little sleep; tongue red, indented at edges; urine, 1·016; albumen, ⅔. 10 Mar., 8th Day.—Vomited some black matter; some bleeding from fauces; slept well; feels better; urine acid, 1·020; albumen, 2-5ths; bile plentiful; chlorides scanty. 11 Mar., 9th Day.—Gums soft, bleeding; skin and eyes deeper yellow; slept well; urine 1·015; albumen 2-5ths. 15 Mar., 13th Day.—Skin and eyes deeper yellow; albumen decreasing in urine; albumen, 1-17th. 20 Mar.—Colour of eyes and skin diminishing; urine alkaline, a trace still of albumen; convalescent.	23 April 1867	- - -	(*See* Diagram, No. 20, at end of Appendix II.)

TABLE III.—SUMMARY of the Cases of Yellow Fever admitted into the Royal Naval

No. of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on duty.
21	Armourer	32	H.M.S. Aboukir	5 Mar. 1867	7 Mar. 1867	Pyrexia for the last two days	March 7.—3rd Day. Severe headache; loin and limb pains; chill this morning; abdominal pains; skin dry, pungent; tongue slightly coated in centre, red at tip and edges; eyes suffused and watery.
22	Boatswain's mate	26	H.M.S. Nettle	9 Mar. 1867	11 Mar. 1867	Pyrexia for the last two days; chills on the 9th instant; headache; bilious vomiting; no albumen in urine.	11 March.—3rd Day. Severe headache; pain of legs; eyes congested; tongue coated in centre, red at tip and edges; vomiting; skin dry, pungent; urine acid, 1·015; albumen, 1-5th; a trace of bile; no green with acids.

Hospital, Jamaica, between the 27th November 1866 and 31st December 1867—*continued.*

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
8 March, 4th Day.—Headache severe; no yellowness; vomited a small quantity of serous fluid, mixed with dark specks; urine acid, 1·020; albumen, 1-10th; trace of bile; no green with acids. 9 March, 5th Day.—Yellowness of eyes; vomiting as yesterday; urine acid, 1·020; albumen, one-ninth; bile increasing; chlorides scanty. 10 March, 6th Day.—Gums soft, bleeding; no vomiting; urine, 1·016; albumen, 1-9th; a few granular tube casts. 11 March, 7th Day.—More yellowness of eyes; tongue red; gums swollen and soft; urine, 1·018; albumen 1-6th; more bile, light green colour, with acetic and nitric acids. 12 March, 8th Day.—Tongue red, moist; passed some dark tarry matter from bowels; urine alkaline, 1·014; albumen, 1-6th. 13 March, 9th Day.—Skin moist, yellow; gums bleeding; urine acid, 1·015; albumen 1-7th; bile increasing. 14 March, 10th Day.—Still bleeding from gums; slight headache; urine acid, 1·015; albumen 1-9th. 15 March.—Feels better; vomited green matter; no bleeding from mouth; pulse slightly irregular; urine, 1·015; albumen, 1-8th. 17 March.—Tongue clean; skin cool; a trace of albumen. 20 March.—Convalescent.	10 May 1867	- - -	(*See* Diagram, No. 21, at end of Appendix II.)
12 March, 4th Day.—Eyes yellowish and congested; insomnia; epistaxis; less headache; urine, acid, 1·015; albumen, 1-4th; more bile. 13 March, 5th Day.—Skin yellowish; eyes very yellow; no complaint; urine acid, 1·010; albumen, 1-3rd; spat some blood. 14 March, 6th Day.—Gums swollen, soft, and bleeding; much blood on bedclothes during night from mouth; catheter drew off urine; no vomiting. Vesp.: comatose all day; passed a stool in bed. Died at 11 p.m.	- -	14 March 1867	(*See* Diagram, No 22, at end of Appendix II.) POST-MORTEM APPEARANCES, 11 hours after death. Body muscular, well nourished; rigor mortis strong; face, chest, abdomen, and front of thighs deep yellow; dependent parts livid. *Abdomen.*—Peritoneum healthy; stomach contains about half a pint of black coffee-ground and viscid-like matter, which stained the mucous membrane; duodenum, jejunum, and ileum, contained a quantity of the same sort of fluid, but of a more viscid consistence. *Liver* of a fawn colour throughout. *Lungs.*—Healthy. *Pericardium* contained about two ounces of straw-coloured fluid. *Heart* large and fatty; full of fluid blood.

TABLE III.—SUMMARY of the Cases of Yellow Fever admitted into the Royal Naval

No. of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on duty.
23	Ship's cook	39	H.M.S. Aboukir	15 Mar. 1867	17 Mar. 1867	Chills on the 15th instant; headache; pains in back and limbs; pulse quick; heat of skin; thirst; bilious vomiting; scanty and high-coloured urine.	17 March.—3rd Day. Frontal headache; pain of back and limbs; tongue thickly coated, brown and dry in centre, red at tip; eyes injected, yellowish; vomiting; skin dry and pungent; urine acid; albumen in small quantity, 1-14th: trace of bile.
24	Stoker	27	H.M.S. Nettle	19 Mar. 1867	19 Mar. 1867	Chills this morning; headache; loin and limb pains; sweating; slight delirium; tremor of hands.	19 March.—1st Day. Headache; pain in back and legs; vomiting; tongue thickly coated white; urine alkaline; no albumen; no bile.

Hospital, Jamaica, between the 27th November 1866 and the 31st December 1867—*continued*.

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
18 Mar., 4th Day.—Diarrhœa; nausea; insomnia; great thirst; urine acid, 1·018; albumen, 1-8th; bile increasing; chlorides normal; no green with acids. 19 Mar., 5th Day.—Vomiting; no diarrhœa; no headache; some epigastric uneasiness; tongue red at tip and edges; urine, 1·018; albumen, 1-6th. 20 Mar., 6th Day.—Eyes deeper yellow; tongue brown, dry, red at tip and edges; no vomiting; urine acid, 1·020; albumen, 1-5th; bile increasing; a trace of green, with acetic and nitric acids. 21 Mar., 7th Day.—Gums bleeding; tongue bright red all over; feels better; urine acid, specific gravity, 1·015; albumen 2-9ths. 22 Mar., 8th Day.—Slept well; feels better; no more bleeding from mouth; pulse irregular; no complaint; urine acid; albumen, 1-4th; specific gravity, 1·015; muddy green, with all the acids. 28 Mar., 14th Day.—Gums bled gently on the 25th; albumen, a trace. 29 Mar.—Convalescent.	10 May 1867	- - -	Had been on leave in Kingston four days previous to his presenting himself as sick. (*See* Diagram, No. 23, at end of Appendix II.)
20 Mar., 2nd Day.—Headache; urine alkaline, phosphatic; no albumen nor bile. 21 Mar., 3rd Day.—Supra orbital pain, and across eyes; tongue coated white, indented; is restless and agitated in his manner; very thirsty; vomited once; skin moist; constriction across chest; urine acid, 1·015; no bile; no albumen. 22 Mar., 4th Day.—Face covered with patches of vesicular eruption; decubitus dorsalis; insomnia. 23 Mar., 5th Day.—Flatulence; eruption fading; urine acid, specific gravity, 1·019; albumen 1-18th; bile considerable. 24 Mar., 6th Day.—Tongue coated white in centre, red at tip and edges; no complaint; urine acid, specific gravity, 1·020; albumen, 1-10th. 25 Mar., 7th Day.—Slept well; feels better; tongue cleaning; urine acid; albumen, 1-9th; bile increasing. 28 Mar.—Pulse slightly irregular; up in ward, convalescent. Convalescence followed by enlargement of glands in inguinal and popliteal regions. Discharged cured 13th May.	13 May 1867	- - -	On leave in Kingston on the 17th of March. (*See* Diagram, No. 24, at end of Appendix II.)

TABLE III.—A SUMMARY of the Cases of Yellow Fever admitted into the Royal Naval

No. of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on duty.
25	Wife to Boatswain of dockyard.	24	Royal Naval Dockyard -	19 Mar. 1867	22 Mar. 1867	Rigors and vomiting on night of the 19th March.	22 March.—4th Day. Frontal headache; rachialgia; eyes congested; tongue large, indented, thickly coated in centre, red at tip and edges; insomnia; incoherent during night; urine acid specific gravity, 1·010; albumen, 1-8th; bile considerable; is five months advanced in pregnancy.
26	Private, Royal Marines -	25	H.M.S. Doris - -	23 Mar. 1867	25 Mar. 1867	Feverish symptoms - -	Admitted on the 25th March -
27	Private, Royal Marines -	34	H.M.S. Doris - -	21 Mar. 1867	25 Mar. 1867	Nausea; headache; rachialgia; tongue foul.	25 March—5th Day. Sickness of stomach; headache, and swimming of head when he attempts to raise it; rachialgia; pain of limbs; yellowness and suffusion of eyes; skin yellow; tremor of hands; agitated and restless.

Hospital, Jamaica, between the 27th November 1866 and the 31st December 1867—*continued*.

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
23 Mar., 5th Day.—Slept well; eyes yellow; epigastric pain; slight headache; urine acid; specific gravity, 1·008; albumen, 1-6th; bile increasing; a trace of green, with a mixture of acetic and nitric acids. 24 Mar., 6th Day.—Eyes deeper yellow; tongue less coated; gums soft and tender; urine high coloured, slightly acid, specific gravity, 1·016; albumen, ½; contains a copious branny deposit. 25 Mar., 7th Day.—Spat a small quantity of blood; no headache; no pains; tongue cleaning; urine acid, 1·015; albumen, ½; less deposit; brick-red with hydrochloric acid; green with mixture of acetic and nitric acids. 26 Mar., 8th Day.—Bleeding from gums during night. 27 Mar., 9th Day.—Gums soft, not bleeding; eyes and skin of a deeper yellow; pulse 78, irregular. 30 Mar.—Convalescent.	5 April 1867	- - -	Living in Kingston a week before being taken ill. (*See* Diagram, No. 25, at end of Appendix II.)
Very restless; incoherent; with difficulty kept in bed; eyes very yellow; skin yellowish; tongue very red at tip and margins, furred and dry in middle; gives a confused account of his complaints, but points to his eyes and temples as the site of pain; hands tremulous; pulse 112, feeble; temperature, 99°; stomach very irritable, throwing off what he drinks; matter vomited contains some flocculent matter; no urine in bladder, none drawn off by catheter. It is not ascertained that he has passed any this morning. Died at 3.25 p.m.	- -	- -	Had been to Kingston on leave. (*See* Diagram, No. 26, at end of Appendix II.)
After admission at 10 a.m. of the 25th March, passed a small black stool of the consistence of glue; bleeding from mouth and gums; very little water passed during day; urine acid, 1·019; albumen, 2-5ths; bile in large quantity; green with mixture of acetic and nitric acids; brick-red with hydrochloric acid. 26 Mar., 6th Day.—Gums bleeding, swollen and tender; eyes and skin deep yellow; is drowsy and heavy; only 1½ oz. of urine drawn off by catheter since last evening; is conscious when spoken to.—At noon: Lying on his back, breathing stertorous; seems to understand what is said, but is unable to speak distinctly; face congested and livid; has made no water. Died at 6.10 p.m.	- -	- -	Was put on the sick-list immediately on his return from leave at Kingston. He had been two days on leave. (*See* Diagram, No. 27, at end of Appendix II.)

TABLE III.—A SUMMARY of the Cases of Yellow Fever admitted into the Royal Naval

No of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on duty.
28	Ordinary seaman	18	H.M.S. Doris	23 Mar. 1867	25 Mar. 1867	Feverish symptoms	March 25.—3rd Day. Headache; general pains; anorexia; skin hot; eyes suffused; albumen, 1-4th.
29	Stoker	28	H.M.S. Doris	26 Mar. 1867	26 Mar. 1867	Feverish symptoms	March 26.—1st Day. Frontal headache; slight pain in back; eyes yellowish and injected; urine acid, 1·008, very pale; no albumen; no bile.
30	Able-bodied seaman	38	H.M.S. Doris	21 Mar. 1867	26 Mar. 1867	Feverish symptoms	March 26.—6th Day. Severe headache; general pains; eyes injected; tongue coated in centre, red at tip and edges; skin moist; urine acid; no albumen; no bile.
31	Able-bodied seaman	26	H.M.S. Doris	26 Mar. 1867	26 Mar. 1867	Feverish symptoms	March 26.—1st Day. Headache; general pains; lumbar pains; eyes injected; has been exposed to sun all day.
32	Ordinary seaman	18	H.M.S. Doris	26 Mar. 1867	26 Mar. 1867	- - - - -	- - - - -
33	Ordinary seaman	30	H.M.S. Doris	26 Mar. 1867	26 Mar. 1867	- - - - -	- - - - -
34	Armourer	30	H.M.S. Doris	27 Mar. 1867	27 Mar. 1867	- - - - -	- - - - -

Hospital, Jamaica, between the 27th November 1866 and the 31st December 1867—*continued.*

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
25 March, 10 a.m.—Passed a black liquid stool, made water at the same time; stupor; vomiting; tongue coated white in centre, indented at sides. 26 March, 4th Day.—Tongue moist, tremulous, red at tip and edges; vomited over a pint of black vomit; insomnia; 14 oz. of urine drawn off by catheter; talking incoherently during the night; eyes injected and yellowish.—At noon: pulse very weak, 112; carphology; black vomit; tongue dry; urine light coloured, acid, 1·008; albumen, 1-5th; only a trace of bile. Died at 2 p.m.	- -	26 March 1867 4th day of fever	On leave in Kingston from the 19th to the 21st March. (*See* Diagram, No. 28, at end of Appendix II.)
27 March, 2nd Day.—Eyes still injected; some frontal headache; tongue red at tip, slightly furred; no albumen or bile in urine. 28 March, 3rd Day.—Some frontal headache; pain in back. 30 March, 5th Day.—Eyes more yellow; gradually gained strength; convalescent 5th April.	25 April 1867	- - -	(*See* Diagram, No. 29, at end of Appendix II.)
27 March.—Eyes yellow, injected; insomnia; cramps in limbs; hands tremulous. In the evening felt much better. 28 March.—Less headache; slight pain in limbs; no albumen in urine. 30 March.—Improving; eyes deeper yellow; is weak. 31 March.—Much better; up in ward.	25 April 1867	- - -	(*See* Diagram, No. 30, at end of Appendix II.)
27 March, 2nd Day.—Eyes injected, yellowish; tongue coated, moist, red at tip and edges; restless. 28 March, 3rd Day.—Pulse irregular, 50. 30 March, 5th Day.—Pulse 50, regular; no complaint.	23 April 1867	- - -	(*See* Diagram, No. 31, at end of Appendix II.)
Cases of simple continued fever, similar to cases 29, 30, 31, erroneously considered yellow fever cases - - - - - -	25 April 1867 16 June 1867 16 June 1867	- - - - - - - - -	Cases 29 and 32 subsequently came under treatment for yellow fever. *Vide* cases 44 and 52. 32 and 33 had been exposed to the sun, working in boats.

TABLE III.—A SUMMARY of the Cases of Yellow Fever admitted into the Royal Naval

No. of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on duty.
35	Stoker	26	H.M.S. Aboukir	26 Mar. 1867	27 Mar. 1867	Rigors at 10 p.m. of 26th March, followed by severe headache; heat of skin; nausea and vomiting; sweating, with loin and limb pains; pulse quick; tongue, coated.	27 March.—2nd Day. Severe frontal headache; loin and limb pains; tongue thickly coated, brownish in centre, red at tip and edges; skin moist; eyes yellow and injected.
36	Clerk	27	H.M.S. Doris	26 Mar. 1867	28 Mar. 1867	Rigors on the night of the 26th March, followed by headache; got wet on his way to Kingston, where he remained two days.	28 March.—3rd Day. Severe frontal headache; eyes injected, yellowish; tongue coated, brownish in centre, red at tip and edges; face flushed; no epigastric tenderness; urine acid, specific gravity, 1·015; albumen, 1-6th; bile in small quantity.

Hospital, Jamaica, between the 27th November 1866 and the 31st December 1867—*continued*.

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
28 Mar., 3rd Day.—Eyes muddy and injected; vomiting; urine acid, specific gravity, 1·010; no albumen; a trace of bile. 29 Mar., 4th Day.—Burning sensation at præcordia; vomiting of all ingesta; urine, 1·012; albumen in small quantity; more bile. 30 Mar., 5th Day.—Eyes yellow; epistaxis; urine, 1·012; albumen, 1-20th. 31 Mar.—Eyes deeper yellow; vomiting; no bleeding from nose; urine acid, 1·014; albumen, 1-12th; bile increasing. 1 April, 7th Day.—Vomited several times in night; no headache or pains; urine, 1·015; albumen, 1-10th. 3 April.—Feels better; appetite good; no nausea; no pain. 6 April.—Up in ward.	23 April 1867	- - -	Returned from leave the 24th March. (*See* Diagram, No. 35, at end of Appendix II.)
29 Mar., 4th Day.—Skin dry and yellowish; frontal headache; eyes much injected and yellow; insomnia; urine acid, specific gravity, 1·014; albumen, 1-6th. 30 Mar.—Bad night's rest; skin moist, pungent; frontal headache; less loin and limb pain; urine acid, specific gravity, 1·014; albumen, ¼; trace of green with mixture of acetic and nitric acids. 31 Mar., 6th Day.—Skin and eyes of a deeper yellow; urine acid, specific gravity, 1·016; albumen, ¼. 1 April, 7th Day.—No pains; no headache; tongue, the fur coming off in streaks, leaving a red raw surface underneath; eyes deeper yellow, less injected; urine acid, specific gravity, 1·016; albumen, 1-3rd; bile in large quantity, of a bright emerald green, with a mixture of acetic and nitric acids. 2 April, 8th Day.—Gums soft; spat up some blood; slight bleeding from urethra; feels better; urine acid, high coloured, specific gravity, 1·018; albumen, ¼; bile in quantity. 3 April, 9th Day.—Bleeding from urethra continues; eyes very yellow; skin soft, yellow. 5 April, 11th Day.—No bleeding; tongue nearly clean; eyes and skin very yellow; urine acid, specific gravity, 1·016; albumen, 1-6th. 6 April, 12th Day.—Pulse 42, irregular; urine acid, specific gravity, 1·020; albumen, 1-0th. 7 April, 13th Day.—Slept well; up in ward.	27 April 1867	- - -	This officer had been in Kingston on the 25th and 26th March, and was much exposed to the sun. He states that he fell overboard when on his way to Kingston on the 25th, and that he was in his wet clothes all the day. (*See* Diagram, No. 36, at end of Appendix II.)

TABLE III.—A SUMMARY of the Cases of Yellow Fever admitted into the Royal Naval

No. of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on duty.
37	Private, Royal Marines -	21	H.M.S. Aboukir - -	29 Mar. 1867	29 Mar. 1867	29 Mar., 6.30 p.m.—Headache; chills; much prostration; vomiting black vomit, like coffee grounds; pain at epigastrium.	29 March.—1st Day. Severe headache; loin and limb pain; skin dry; tongue bright red, dry; restless; talks like a drunken man; eyes injected; vomited once since admission.

Hospital, Jamaica, between the 27th November 1866 and the 31st December 1867—*continued.*

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
30 Mar., 2nd Day.—Insomnia; frontal headache; epigastric pain; eyes injected, yellowish; skin soft, moist; tongue bright red, the fur coming off in streaks; urine acid, specific gravity, 1·008; no albumen; no bile. 31 Mar., 3rd Day.—Says he is better; eyes yellow.	- -	8 April 1867 - 11th day of fever.	He had been the subject of remittent fever shortly before he caught the infection of yellow fever. (*See* Diagram, No. 37, at end of Appendix II.)
1 April, 4th Day.—Some epigastric pain; no headache; gums soft; spat up a little blood; passed a copious gelatinous black stool; is very restless; urine acid, very pale, specific gravity, 1·000; no albumen or bile. 2 April.—Dejections still black. *3 April, 6th Day.—Gums soft and slightly swollen; very restless; stools not so black; skin yellowish; urine very pale, specific gravity, 1·004; a trace of bile and albumen. 4 April, 7th Day.—Much black vomit during night; insomnia; dejection black; urine acid, specific gravity, 1·004; albumen, 1-5th. 5 April, 8th Day.—Skin of a deeper yellow; more black vomit; blood from gums; urine pale, acid, specific gravity, 1·004; albumen, 1-7th; bile in small quantity. 6 April, 9th Day.—Insomnia; incoherent; bleeding from the mouth; making water in large quantity, colour dark; very restless; breathing laborious; urine acid, specific gravity, 1·004; albumen 1-7th; bile in small quantity. 7 April, 10th Day.—Very restless all night; talking incoherently; much bleeding from mouth; eyes deeper yellow; twitching of hands; pulse very weak; is apparently unconscious; urine acid, pale; albumen, 1-5th; a trace of bile; specific gravity, 1·008. 8 April, 11th Day.—Very low; muscular twitchings of the extremities; hæmorrhage from mouth considerable; swallows with difficulty; 50 ounces of urine drawn off by catheter; urine acid, specific gravity, 1·008; albumen, 1-4th; more bile; no green with acids. Died at 4.5 p.m.			

TABLE III.—A SUMMARY of the Cases of Yellow Fever admitted into the Royal Naval

No. of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on duty.
38	Able-bodied seaman - -	48	H.M.S. Nettle - -	4 April 1867 -	5 April 1867 -	5 April.—2nd Day. Chills last evening; frontal headache; pains in back and in epigastrium; vomiting, 1 pint of greenish coloured fluid, with a sediment resembling coffee grounds.	5 April.—2nd Day. Severe frontal headache; pains in back and calves of legs; eyes yellowish and injected; skin dry; urine pale, acid, specific gravity, 1·008; no albumen; a trace of bile.
39	Engineer - - - - -	28	H.M.S. Abonkir - -	6 April 1867 -	6 April 1867 -	6 April.—1st Day. Rigors, followed by headache; rachialgia; hot skin; quick pulse.	6 April.—1st Day. Skin very hot; headache; rachialgia; has a gonorrheal discharge upon him now.

Hospital, Jamaica, between the 27th November 1866 and the 31st December 1867—*continued.*

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
6 April, 3rd Day.—Severe headache; no other pain; eyes more injected; skin moist, very pungent to touch; urine acid, specific gravity, 1·020, pale in colour; albumen, 1-16th; bile in small quantity. 7 April, 4th Day.—Had no sleep; eyes yellow. 8 April, 5th Day.—Slight headache; skin yellowish; tongue creamy and pasty; urine acid, specific gravity, 1·014, pale in colour; albumen, 1-7th; bile increasing. 9 April, 6th Day.—Tongue cleaner; colour of eyes and skin deeper; no headache; no pains; skin dry; urine acid, specific gravity, 1·015; albumen, 1-5th; bile as yesterday. 10 April, 7th Day.—Tongue has a scanty dry fur in centre, red at tip and edges; eyes deep yellow; urine acid, specific gravity, 1·016; albumen, 1-3rd; more bile. 11 April, 8th Day.—Colour of skin deeper; pulse intermitting; no complaint; urine acid, specific gravity, 1·015; albumen, 1-3rd. 15 April.—No complaint but weakness; skin of a deeper colour; urine alkaline on the 13th, acid on the 14th; convalescent.	3 June 1867	- - -	(*See* Diagram, No. 38, at end of Appendix II.)
7 April, 2nd Day.—Headache; rachialgia, eyes yellowish; no epigastric tenderness; tongue coated with yellow fur in centre, clean at tip and edges; vomited twice; urine acid, specific gravity, 1·019; albumen, 1-9th; a trace of bile. 8 April, 3rd Day.—Tongue coated, creamy in centre, red at tip and edges; some frontal headache; eyes yellow and injected; urine acid, specific gravity, 1·022, pale yellow; albumen, 1-6th; bile increasing. 9 April, 4th Day.—Vomited some green matter; eyes deeper yellow; some bleeding from urethra; herpes labialis; urine acid, specific gravity, 1·018; albumen, 1-6th; bile in greater quantity. 10 April, 5th Day.—Complains of soreness of throat; mucous membrane of mouth and fauces red; gums soft; bleeding from mouth; bleeding from urethra continues; skin moist; urine acid, specific gravity, 1·016; albumen, 1-5th. 11 April, 6th Day.—Still some bleeding from urethra; no bleeding from mouth; urine acid, specific gravity, 1·015; albumen, 1-3rd. 12 April, 7th Day.—Slept well; eyes deeper yellow; urine acid, specific gravity, 1·015; albumen, 7-18ths; bile increasing in quantity. 13 April, 8th Day.—Tongue tremulous; eyes and skin of a deeper yellow; gums tender; no bleeding; urine acid, specific gravity, 1·022, albumen, 1-6th. 18 April.—Gradually gaining strength; no albumen; convalescent.	10 May 1867	- - -	(*See* Diagram, No. 39, at end of Appendix II.)

TABLE III.—A SUMMARY of the Cases of Yellow Fever admitted into the Royal Naval

No. of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on Duty.
40	Able-bodied seaman	33	H.M.S. Aboukir	7 April 1867	8 April 1867	Rigors yesterday, followed by headache; rachialgia; epigastric pain; eyes injected; tongue white.	8 April.—2nd Day. Face flushed; headache; rachialgia; tongue moist, white fur in centre, clean at tip and edges.
41	Ordinary seaman	22	H.M.S. Aboukir	8 April 1867	9 April 1867	Rigors at 11 p.m. of the 8th April; rachialgia; nausea; profuse sweating; vomiting of a bilious matter.	9 April.—2nd Day. Frontal headache; loin and limb pain; some epigastric tenderness; eyes yellowish and injected; tongue slightly red at tip and edges, indented at edges; urine pale; no albumen; no bile.
42	Ordinary seaman	19	H.M.S. Aboukir	9 April 1867	9 April 1867	- - - - -	- - - - -

Hospital, Jamaica, between the 27th November 1866 and the 31st December 1867—*continued.*

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
9 April, 3rd Day.—Insomnia; headache; slight epigastric tenderness; eyes much injected; face flushed; no albumen nor bile in urine. 10 April, 4th Day.—Skin moist, pungent; urine acid, cloudy; albumen, 1-8th of tube, with a trace of bile. 11 April, 5th Day.—Eyes and skin yellow; headache severe; bowels acted; no sickness; urine acid; albumen, 1-4th of tube. 12 April, 6th Day.—Sick during the night; vomiting quantities of dark flocculent matter; dejections dark also; gums soft and swollen; eyes deeper yellow; urine, albumen, 1-3rd; bile increasing in quantity. 13 April, 7th Day.—Bleeding from mouth; eyes and skin of chest deeper yellow; epigastric uneasiness; black vomit; urine acid, specific gravity, 1·020; albumen, 5-12th. 14 April, 8th Day.—Eyes and skin deeper yellow; cardiac pain; bleeding from mouth; hiccough in the evening; urine neutral, specific gravity, 1·020; albumen, 1-3rd. 15 April, 9th Day.—The yellow tinge has deepened over body; face livid; hæmorrhage from mouth continues; a return of hiccough for an hour; urine neutral, specific gravity, 1·020; albumen, ½; bile increased. 16 April, 10th Day.—Hiccough returned at 2 a.m., and lasted half an hour; slept till half-past 5 a.m., when it returned; return of bleeding from mouth; skin deeper yellow; urine, specific gravity, 1·018; albumen 1-4th; bile as yesterday. 17 April, 11th Day.—Hæmorrhage continues from mouth, and hiccough has been troublesome the greater part of the day; urine neutral, specific gravity, 1·015; albumen, 1-4th. 18 April, 12th Day.—Much oppressed with hiccough the whole day, nothing relieving it; black vomit in large quantity this morning; urine neutral, specific gravity, 1·012; albumen, 1-5th. 19 April, 13th Day.—Passed water in bed twice; very restless; is in a state of semi-stupor; no black vomit; skin deep yellow. Died at 4 p.m.	- -	19 April 1867 13th day of fever.	Slept two nights in Kingston; 4th April returned. (*See* Diagram, No 40, at end of Appendix II.)
10 April, 3rd Day.—Headache and rachialgia; eyes yellow; pulse irregular; vomiting of a dark matter; urine slightly acid, specific gravity, 1·008; albumen, 1-9th; a trace of bile. 11 April, 4th Day.—Eyes and skin yellow; vomiting of all ingesta; skin moist, perspiring; urine acid, pale, specific gravity, 1·008; albumen, 1-7th; bile increasing. 12 April, 5th Day.—Eyes and skin deeper yellow; vomiting; urine acid, specific gravity, 1·015; albumen, 1-6th; bile a large quantity. 13 April, 6th Day.—Constant vomiting black vomit; skin and eyes of a deep yellow; tongue coated brownish, rough in centre, red at tip and edges; incoherent; no urine passed; catheter drew off ½ oz. of dark coloured urine; black vomit in large quantities. Died 9·30 p.m.	- -	13 April 1867 6th day of fever.	Was on leave at Port Royal on the 7th April 1867. (*See* Diagram, No. 41, at end of Appendix II.)
Case of simple continued fever of a severe type -	25 May 1867.		

TABLE III.—A SUMMARY of the Cases of Yellow Fever admitted into the Royal Naval

No. of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on duty.
43	Private, Royal Marines -	33	H.M.S. Cadmus - -	21 April 1867	22 April 1867	Suddenly seized on the 21st April with strong febrile symptoms; irritability of stomach; headache and lumbar pains; delirium.	22 April.—2nd Day. Much prostration; eyes injected; skin dry, hot, pungent; stools black.
44	Stoker - - - - -	29	H.M.S. Doris - -	28 April 1867	28 April 1867	Rigor morning previous to admission; headache; limb and loin pains; epigastric tenderness; vomiting.	28 April.—1st Day. Headache; pains of limbs; eyes slightly injected; skin moist; tongue dry and foul.

Hospital, Jamaica, between the 27th November 1866 and the 31st December 1867—*continued.*

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
23 April, 3rd Day.—Insomnia; headache; eyes yellowish; tongue bright red at tip and edges; skin pungent and moist; urine, albumen, 1–8th. 24 April, 4th Day.—Much better this morning; eyes deeper yellow; vomiting of green coloured serum with brownish specks; albumen, 1–5th. 25 April, 5th Day.—No headache; no sickness; herpes labialis; skin soft and moist; albumen, ½; some bile. 26 April, 6th Day.—Hiccough; herpes about mouth red and crusted; gums tender and bleeding; passes urine plentifully; albumen, ½. 27 April, 7th Day.—Slept well; mouth tender and bleeding; albumen, ½. 28 April, 8th Day.—Slept well; no hiccough, no bleeding; albumen, 4–5ths; urine dark coloured. 29 April, 9th day.—No pains; feels better; urine dark coloured; albumen, 4–5ths. 2 May.—Is up in ward; albumen decreasing.	3 June 1867 -	- - -	(*See* Diagram, No. 43, at end of Appendix II.)
29 April, 2nd Day.—Severe headache; thirst; skin hot and moist; flatus; vomiting; no albumen in urine. 30 April, 3rd Day.—Slept pretty well; feels better; less headache; vomiting dark flocculent matter; albumen 1-5th in urine, which contains some bile. 1 May, 4th Day.—Headache not complained of; much vomiting; stools feculent, thin, natural in colour; skin moist, but burning, yellowish; tongue red at tip and edges; eyes yellow; sense of faintness; urine 1–10th albumen; less bile. 2 May, 5th Day.—Very thirsty; vomiting of ingesta; headache severe; skin of a deeper colour; makes water freely; urine, specific gravity, 1·008, deep yellow, acid. 3 May, 6th Day.—Gums soft and swollen; herpes labialis; colour of skin very deep; hiccough; vomiting continues; albumen, 1–5th. 4 May, 7th Day.—Vomited some blood; black vomit; hiccough; incoherent at times; albumen, 1–4th. 5 May, 8th Day.—Skin and eyes very yellow; black vomit very distressing; hiccough; incoherent; bleeding from mouth; twitchings of arms. 6 May, 9th Day.—Breathing slow and difficult; extremities cold; unconscious; pulse imperceptible. Died at 10 a.m.	- -	6 May 1867 - 9th day of fever.	Contracted from yellow fever patients in hospital whilst under treatment for simple continued fever. (*See* Diagram, No. 44, at end of Appendix II.)

TABLE III.—A SUMMARY of the Cases of Yellow Fever admitted into the Royal Naval

No. of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on duty.
45	Ordinary seaman - -	19	H.M.S. Jason, but sent from H.M.S. Aboukir.	28 April 1867	28 April 1867	Seized suddenly whilst at prayers on the 28th April with severe headache; rachialgia; when examined, could not reply to questions; eyes congested; convulsive movements of lips and lower jaw; sent to hospital immediately.	28 April—1st Day. Talking incessantly; headache; rachialgia; skin moist; eyes injected; tongue moist, slightly coated, red at tip and edges.
46	Chaplain - - - - -	29	H.M.S. Aboukir - -	4 May 1867	6 May 1867	Rigor on the night of 4th; feverish symptoms.	6 May.—3rd Day. Frontal headache; pain across eyes; rachialgia; tongue coated white in centre, clean at tip and edges; thirst; skin dry, pungent; eyes injected; urine acid, specific gravity, 1·008, muddy, light yellow; albumen, 1-7th; a trace of bile.
47	Private, Royal Marines -	28	H.M.S. Cadmus - -	This man was admitted into the Royal Naval Hospital on the 5th April 1867, for the treatment of bronchitis, and a secondary specific eruption, and whilst under treatment contracted yellow fever from persons infected with this disease in hospital.			

Hospital, Jamaica, between the 27th November 1866 and the 31st December 1867—*continued.*

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
29 April, 2nd Day.—Headache severe; rachialgia; eyes deeply injected and yellow; no water passed since last night; 4 oz. drawn off by catheter; vomiting dark flocculent precipitate; albumen, a trace. 30 April, 3rd Day.—Vomiting during night black vomit; eyes deeply injected; skin perspiring; tongue large, flabby, red at edges; stools black; much black vomit during day; passed some urine; albumen, 1-5th. 1 May, 4th Day.—Eyes injected and yellow; skin yellow; black vomit; is perspiring freely; albumen, 1-4th; trace of bile. 2 May, 5th Day.—Much headache; pain at epigastrium; much black vomit; skin of a deeper yellow; epistaxis; catheter drew off 7½ oz. of urine; urine acid, specific gravity 1·010, dark yellow, contains bile and albumen. 3 May, 6th Day.—Incoherent during the night; skin of a dusky yellow; face and neck livid; complete suppression of urine; delirious; constant vomiting of all ingesta. Died at 6.55 p.m.	- -	3 May 1867 6th day of fever.	On leave at Port Royal on the 23rd and 24th April. (*See* Diagram, No. 45, at end of Appendix II.)
7 May, 4th Day.—Heaviness of head; vomiting; eyes yellow; spat up some blood; urine slightly acid, specific gravity, 1·008; albumen, 1-5th; bile, only a trace; chlorides scanty. 8 May, 5th Day.—Restless night; no headache; vomiting of some dark coffee-ground matter; skin moist, yellow; eyes deep yellow; slightly incoherent; urine very acid, muddy, and dark yellow, more so than yesterday; bile increasing; albumen, 1-4th. 9 May, 6th Day.—Very restless, trying to get out of bed; incoherent and full of delusions; vomiting black vomit; eyes deeply coloured; skin moist, yellow; gums soft; herpes labialis; tongue red and bleeding; wandering; sordes on teeth; black spots on lips. Died at 7·15 p.m.	- -	9 May 1867 6th day of fever.	(*See* Diagram, No. 46, at end of Appendix II.)
22 May, 1st Day of fever; headache; rachialgia and pains of limbs. 23 May, 2nd Day.—Pain of back and legs; feverish. 24 May, 5th Day.—Nausea; giddy; no headache; skin hot; tongue slightly furred; skin moist. 25 May.—Tongue furred, creamy in middle; conjunctivæ yellow; stomach irritable, vomiting; urine acid, specific gravity 1·020, muddy yellow; albumen, 1-3rd; some bile. 26 May, 5th Day.—Vomiting black flocculi; eyes very yellow; restless and incoherent; skin soft; urine acid, specific gravity 1·016, dark yellow; albumen, 1-6th; bile increased. 27 May, 6th Day.—Restless and incoherent; surface of body dark and livid; black vomit; respiration hurried. Died at 5 p.m.	- -	27 May 1867 6th day of fever.	Infection contracted from yellow fever patients in hospital. (*See* Diagram, No. 47, at end of Appendix II.)

TABLE III.—A SUMMARY of the Cases of Yellow Fever admitted into the Royal Naval

No. of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on duty.
48	Tailor - - - -	34	H.M.S. Cadmus - -	This man was admitted into the Royal Naval Hospital on the 17th April for the treatment of hæmorrhoids; on the 22nd May symptoms of yellow fever evinced themselves. There were cases of yellow fever under treatment in hospital at the time.			
49	Assistant Paymaster - -	–	H.M.S. Cadmus - -	Admitted into the Royal Naval Hospital on the 5th April 1867, for rheumatism. On the 22nd May, symptoms of fever declared themselves at a time when yellow fever cases were under treatment in the hospital.			

Hospital, Jamaica, between the 27th November 1866 and the 31st December 1867—*continued.*

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
22 May, 1st Day.—Headache and general pains; skin moist, hot; much thirst; epistaxis last evening. 23 May, 2nd Day.—Thirst; spat up some blood, seemingly from nose or throat. 24 May, 3rd Day.—Slept well; skin moist; slight headache. 25 May, 4th Day.—Feels better; has no pains; epistaxis; urine acid, specific gravity 1·016, pale yellow; albumen, 1–9th; trace of bile. 26 May, 5th Day.—Eyes slightly yellow; urine acid; specific gravity, 1·016; albumen, 1–4th. 27 May, 6th Day.—Slight epistaxis; slept well; urine acid; albumen, 2–5ths; bile increasing. 28 May, 7th Day.—Eyes deeper yellow; skin yellowish; urine acid, specific gravity 1·018; albumen, ½; bile as yesterday. 29 May, 8th Day.—No complaint but weakness; some bleeding from hæmorrhoids; albumen, ½. 30 May, 9th Day.—Eyes and skin yellowish; is better and feels stronger; albumen, 2–5ths. 1 June, 11th Day.—Albumen, 1–12th; convalescent.	4 July 1867	- - -	Contracted from yellow fever cases in hospital. (*See* Diagram, No. 48, at end of Appendix II.)
22 May, 1st Day of Fever.—Headache; lumbar pains; eyes injected; vomiting. 23 May, 2nd Day.—Face slightly flushed; nausea; frontal headache; rachialgia; tongue thickly coated, white and pasty in centre, red at tip and edges; urine acid, pale yellow; albumen, 1–7th; a trace of bile. 24 May, 3rd Day.—Diarrhœa; passed 5 oz. of water during the day; urine acid, albumen, 1–5th. 25 May, 4th Day.—Nausea; makes water more freely; less diarrhœa; tongue cleaner; skin moist; urine acid, specific gravity 1·020, dark yellow; albumen, 1–5th; chlorides scanty. 26 May, 5th Day.—Eyes deeper yellow; slept well; a few small purpuric spots on arms and legs; urine acid; specific gravity 1·020, reddish yellow; albumen, 1–16th; bile increasing. 27 May, 6th Day.—No pains; tongue cleaner; skin soft and moist; eyes deeper yellow; urine alkaline; specific gravity, 1·018; no albumen. 28 May, 7th Day.—No complaint but weakness; urine acid, specific gravity 1·018; bile is found in urine but no albumen. 1 June.—Convalescent	24 June 1867	- - -	Contracted from cases in hospital. (*See* Diagram, No. 49, at end of Appendix II.)

TABLE III.—A SUMMARY of the Cases of Yellow Fever admitted into the Royal Naval

No. of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on duty.
50	Ordinary seaman - -	18	H.M.S. Aboukir - -	25 May 1867	27 May 1867	Headache; lumbar pains; nausea; epigastric tenderness; tongue white; albumen found in urine.	27 May.—3rd Day. Incoherent; headache; rachialgia; eyes injected, yellowish; tongue thickly coated and white in centre, red at tip and edges; urine, albumen, 1-10th.
51	Deputy Inspector General of Hospitals and Fleets.	49	Royal Naval Hospital, Jamaica.	29 May 1867	29 May 1867	Slight headache and uneasy feeling in back; nausea; tongue coated; some soreness across eyes.	

Hospital, Jamaica, between the 27th November 1866 and the 31st December 1867—*continued.*

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
28 May, 4th Day.—Eyes yellow and injected; nausea; passed a large dark, watery stool; 5 ounces of urine drawn off by catheter; incoherent; urine acid, specific gravity 1·020; albumen, 1–9th; some bile. 29 May, 5th Day.—Skin yellow, moist; eyes deep yellow; made very little water; vomiting; no headache; urine alkaline, specific gravity 1·022, deep yellow; albumen, 1–10th; some bile. 30 May, 6th Day.—Twenty-five ounces of water passed during night; eyes and skin yellow; urine alkaline, specific gravity, 1·022; albumen, 1–6th. 31 May, 7th Day.—Makes water freely; skin and eyes deeper yellow; no heaviness about head; slept well; urine alkaline; albumen, 1–3rd. 1 June, 8th Day.—Slept well; skin and eyes very yellow; tongue cleaning; has no complaint; urine alkaline, dark yellow, muddy; albumen, 1–3rd; bile as before. 5 June.—Convalescent.	4 July 1867 -	- - -	(See Diagram, No. 50, at end of Appendix II.)
30 May, 2nd Day of Fever.—Less headache; tongue more coated; vomiting of ingesta; urine acid, pale yellow; trace of bile; no albumen. 31 May, 3rd Day.—Slept well; vomiting bilious; skin yellowish; eyes injected, yellow; urine acid, specific gravity 1·020, light yellow; albumen, 1–8th. 1 June, 4th Day.—Restless; insomnia; eyes and skin yellow; faintness when he attempts to get up; passed water freely; slight headache; urine acid, specific gravity, 1·020; albumen, 1–5th; bile slightly increasing. 2 June, 5th Day.—Slept well; eyes and skin yellow; nausea; no vomiting; pulse irregular, 60; urine acid, specific gravity 1·012, muddy; albumen, 1–4th; bile increasing. 3 June, 6th Day.—Restless; pulse 52, irregular; eyes and skin of a deeper yellow; herpes labialis; made water freely; urine acid, specific gravity 1·012; albumen 1–3rd. 4 June, 7th Day.—Restless and very weak; no headache; herpes hæmorrhagica; epistaxis; eyes and skin very yellow; stool natural; urine acid, specific gravity 1·010, clear dark yellow; albumen, 1–3rd; bile in large quantity. 5 June, 8th Day.—Acid eructations; eyes and skin very yellow; epistaxis; tongue cleaning; urine acid, specific gravity 1·010; albumen 1–3rd; bile as yesterday. 6 June, 9th Day.—Epistaxis; black vomit; restless and low spirited; urine acid, specific gravity 1·010; albumen, 1–3rd; a grass green colour with a mixture of acetic and nitric acids. 7 June, 10th Day.—Eyes very yellow; epistaxis; black vomit; hiccough; skin hot and pungent; pulse weak and irregular; towards evening became unconscious; catheter drew off 35 ounces of dark coloured urine; skin sweating profusely; albumen, 1–3rd. 8 June, 11th Day.—Unconscious all night; stools black like black vomit; 14 ounces of urine drawn off by catheter; sinking. 11.8 p.m. died.	- -	8 June 1867 - 11th day of fever.	In charge of the Royal Naval Hospital at Jamaica, and in constant and anxious attendance upon the yellow fever patients under his care. (See Diagram, No. 51, at end of Appendix II.)

TABLE III.—A SUMMARY of the Cases of Yellow Fever admitted into the Royal Naval

No. of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on duty.
52	Ordinary seaman - -	19	H.M.S. Aboukir - -	29 May 1867	1 June 1867	Frontal headache; loin and limb pains; eyes injected; epigastric tenderness; diarrhœa, dark, watery; tongue foul in centre, clean at tip.	1st June.—4th Day. Frontal headache; eyes yellow, injected; epigastric tenderness; stools dark and watery; urine acid, pale yellow; albumen, 1-20th.
53	Able-bodied seaman - -	26	H.M.S. Constance - -	This man was admitted into the Royal Naval Hospital from Her Majesty's Ship Constance on the 17th May 1867, for the treatment of chest affection, and whilst in hospital caught the infection of yellow fever, several cases of this disease being then under treatment likewise.			
54	Assistant surgeon - -	—	Sent from H.M.S. Constance to do duty at the Royal Naval Hospital.	11 June 1867	11 June 1867	- - - - -	- - - - -

Hospital, Jamaica, between the 27th November 1866 and the 31st December 1867—*continued.*

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
2 June, 5th Day.—Eyes more injected and yellowish; pain across eyes; vomiting; made but little water; urine acid, specific gravity 1·018, dark yellow; albumen, 1-5th. 3 June, 6th Day.—Eyes injected and yellow; vomiting; insomnia; tongue coated in centre, red at tip and edges; made water freely; urine acid; albumen, 1-5th. 4 June, 7th Day.—Insomnia; eyes very yellow; skin yellow; pulse slightly irregular; headache; urine acid, specific gravity 1·014; albumen, 1-6th. 5 June, 8th Day.—Feels better; tongue cleaning; skin moist; a trace of blood from mouth; urine acid, albumen, 1-5th. 6 June, 9th Day.—Eyes very yellow; skin yellow, moist. 9 June.—Convalescent.	4 July 1867 -	- - -	(*See* Diagram, No. 52, at end of Appendix II.)
9 June, 1st Day.—Headache; rachialgia; tongue slightly coated; urine acid, light yellow; no bile; no albumen. 10 June, 2nd Day.—As yesterday; skin moist. 11 June, 3rd Day.—Headache; pain of back; urine acid, specific gravity 1·012, light yellow; albumen, 1-6th; a trace of bile. 12 June, 4th Day.—Epistaxis; nausea; eructations; no headache; severe lumbar pains; urine acid, specific gravity 1·014; albumen, 1-5th; bile increasing. 13 June, 5th Day.—Epistaxis; slight epigastric tenderness; nausea and eructations; eyes yellowish; made water freely; urine, specific gravity 1·020; albumen, 1-11th. 14 June, 6th Day.—Chest covered with an eruption of lichen; eyes deeper yellow; says he feels very well; insomnia; bowels purged; urine pale yellow; less bile; albumen, 1-20th. 15 June, 7th Day.—Slept well; skin yellowish; no complaint; urine alkaline, specific gravity 1·006, pale yellow; no albumen. 17 June, 9th Day.—Convalescent.	11 July 1867 -	- - -	Contracted from cases of yellow fever in hospital. (*See* Diagram, No. 53, at end of Appendix II.)
11 June, 1st Day, 4 p.m.—Slight headache and pain in back; rigor in the forenoon; vomiting; eyes injected; skin dry, pungent; urine acid, very pale, specific gravity 1·012; no bile; no albumen; phosphates plentiful. 12 June, 2nd Day.—Eyes yellowish; urine acid, specific gravity 1·016; a trace of bile; no albumen. 13 June, 3rd Day.—Insomnia; makes water freely; urine acid; albumen, 1-9th. 14 June, 4th Day.—Skin dry and rough; albumen, 1-9th. 15 June, 5th Day.—Excepting pain in back has no complaint; albumen, 1-10th. 16 June, 6th Day.—Skin yellowish; vomiting brownish fluid; urine acid, specific gravity 1·016, dark yellow; bile increasing; albumen, 1-8th. 17 June, 7th Day.—Eyes deeper yellow; no complaint; urine acid, specific gravity 1·010; albumen, 1-10th. 18 June, 8th Day.—Skin of a deeper yellow; urine, specific gravity 1·016; albumen, 1-8th. 21 June, 11th Day.—Convalescent	6 July 1867 -	- - -	Contracted the fever whilst in attendance upon the yellow fever patients in Royal Naval Hospital. (*See* Diagram, No. 54, at end of Appendix II.)

TABLE III.—A SUMMARY of the Cases of Yellow Fever admitted into the Royal Naval

No. of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on duty.
55	Paymaster - - -	35	H.M.S. Aboukir - -	10 June 1867	12 June 1867	Convalescing from remittent fever; on the night of the 10th restless and feverish.	12 June.—3rd Day. Eyes yellowish; great prostration; droway; urine acid, specific gravity 1·008; albumen, 1-10th; trace of bile.
56	Carpenter's mate - -	31	H.M.S. Aboukir - -	15 June 1867	16 June 1867	Headache; hot skin; urine scanty, high coloured and albuminous; herpes labialis.	16 June.—2nd Day. Rachialgia; slight headache; eyes deep yellow and injected; no epigastric tenderness; tongue coated in centre, red at tip; urine acid, albumen, 1-7th; some bile.
57	Able-bodied seaman -	27	H.M.S. Constance - -	17 June 1867	19 June 1867	Was attacked on the afternoon of the 17th June with severe headache and pain in back.	19 June.—3rd Day. Headache; rachialgia; eyes yellow and injected; tongue clean, moist; urine acid, specific gravity 1·012; albumen, 1-7th; a trace of bile.

Hospital, Jamaica, between the 27th November 1866 and the 31st December 1867—*continued*.

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
13 June, 4th Day.—Skin moist, yellowish; tongue clean in centre, red at tip and edges; eyes deeper yellow; less drowsy; urine acid, specific gravity 1·006; albumen, 1-10th. 14 June, 5th Day.—Talking incoherently; makes water freely; skin moist; urine acid, specific gravity 1·006; albumen, 1-12th. 15 June, 6th Day.—1 a.m., talking incoherently; 1.30 a.m., he became unconscious; pulse almost imperceptible; skin bathed with cold perspiration; teeth clenched; respiration slow, and sighing; pupils natural; recovered gradually from this state; at noon was quite conscious; urine acid, specific gravity 1·006; albumen, 1-10th; bile increasing. 16 June, 7th Day.—Slept well; made water freely; urine as yesterday. 17 June, 8th Day.—Vomited some bilious matter; quite collected; urine acid, specific gravity 1·008; albumen, 1-15th. 18 June, 9th Day.—Skin yellow; slept better; tongue clean; urine acid, specific gravity 1·005; albumen 1-18th. 21 June.—Much improved.	6 July 1867	- - -	(See Diagram, No. 55, at end of Appendix II.)
17 June, 3rd Day.—Skin moist, yellowish; eyes very yellow; slept well; some pain in back; headache; made water freely; urine acid, specific gravity 1·008, reddish yellow, muddy; albumen, 1-6th. 18 June, 4th Day.—Skin not moist, but greasy; eyes and skin deeper yellow; urine acid, specific gravity 1·008; albumen, 1-10th. 19 June, 5th Day.—Tongue clean; no headache; no pains; skin dryish; urine alkaline, specific gravity 1·008; albumen 1-15th; bile as before. 20 June, 6th Day.—No complaint; skin moist; tongue clean; urine alkaline, specific gravity 1·000; no bile; a trace of albumen. 23 June, 9th Day.—Skin and eyes less yellow; urine acid, specific gravity 1·008; a trace of albumen; convalescent.	11 July 1867	- - -	(See Diagram, No. 56, at end of Appendix II.)
20 June, 4th Day.—Skin moist, yellowish; eyes yellow; tongue clean; urine acid, specific gravity 1·014, light yellow; albumen, 1-18th; trace of bile. 21 June, 5th Day.—Skin dryish; eyes less yellow. 29 June, 13th Day.—Symptoms never urgent; albumen gradually decreased; to-day none found; is weak, but convalescing.	11 July 1867	- - -	(See Diagram, No. 57, at end of Appendix II.)

TABLE III.—A SUMMARY of the Cases of Yellow Fever admitted into the Royal Naval

No. of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on duty.
58	Ward-room officer's servant	20	H.M.S. Constance	18 June 1867	21 June 1867	18 June—1st Day. Headache; loin pain. 20 June—3rd Day. Albumen in urine; skin yellowish; eyes congested; partial suppression of urine.	21 June.—4th Day.—Forenoon. Headache; rachialgia; epigastric tenderness; eyes very much congested and deeply yellow; skin moist and deep yellow; tongue bright red at tip and edges, dark brown and dry in centre; sordes on teeth; drowsy on admission; suppression of urine.
59	Midshipman	17	H.M.S. Constance	5 Sept. 1867	7 Sept. 1867	7 Sept.—3rd Day. Hot dry skin; flushed countenance; tongue thickly furred; thirst.	7 Sept.—3rd Day. Headache; rachialgia; nausea; eyes injected; epigastric tenderness; urine acid, specific gravity 1·020; albumen, 1-10th; a trace of bile.
60	Captain mizzentop	30	H.M.S. Jason	9 Sept. 1867	10 Sept. 1867	Frontal headache; lumbar pain; tongue white, furred; epigastric pain; a slight trace of albumen in urine.	10 Sept.—2nd Day. Slight headache; rachialgia; epigastric tenderness; skin soft, greasy; tongue moist.
61	Able-bodied seaman	30	H.M.S. Jason	7 Sept. 1867	10 Sept. 1867	7 Sept.—1st Day. Headache; loin pain. 8 Sept.—2nd Day. Urine albuminous. 9 Sept.—3rd Day. Epigastric pain; vomiting.	10 Sept.—4th Day. Headache; loin pain; epigastric tenderness; skin soft, greasy; eyes injected.

Hospital, Jamaica, between the 27th November 1866 and the 31st December 1867—*continued.*

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
21 June, 4th Day.—0.30 p.m. Vomited black vomit, 3 ounces; catheter drew off 2 drams of urine; becoming incoherent. 2 p.m.—Sweated in hot air bath; feels easier; black vomit again; epistaxis. 7 p.m.—Black vomit brought up without effort; hiccough; very restless; is incoherent; skin pungent; gradually sank, and died at 9.20 p.m.	- -	21 June 1867 - 4th day of fever.	(*See* Diagram, No. 58, at end of Appendix II.)
8 Sept., 4th Day.—Headache; eyes yellow posteriorly; tongue pasty in centre, clean at tip and edges; urine acid, specific gravity 1·020; albumen, 1-16th; a trace of bile; chlorides diminished in quantity. 9 Sept., 5th Day.—Eyes deeper yellow; skin yellowish; made plenty of water; urine acid, specific gravity 1·020; albumen, a trace; chlorides nearly absent; bile as yesterday. 10 Sept., 6th Day.—Urine acid, specific gravity 1·014; no albumen; chlorides reappearing; gradually recovered strength; sent to hills for change.	24 Sept. 1867	- - -	(*See* Diagram, No. 59, at end of Appendix II.)
11 Sept., 3rd Day.—Much headache; eyes injected; urine acid, specific gravity 1·012; a trace of bile and albumen; phosphatic. 12 Sept., 4th Day.—Skin dry; tongue thickly coated in centre, and moist, clean at tip and edges; urine acid, specific gravity 1·012; trace of albumen, 1-18th. 13 Sept., 5th Day.—Slept well; eyes deeply injected; urine acid, specific gravity 1·020; albumen, a trace. 14 Sept., 6th Day.—No complaint but weakness; skin slightly yellow; urine acid, specific gravity 1·016; no albumen. 16 Sept., 8th Day.—Convalescent.	15 Oct. 1867	- - -	(See Diagram, No. 60, at end of Appendix II.)
11 Sept., 5th Day.—Expression of countenance anxious; much febrile excitement; slightly incoherent; skin yellow; tongue thickly coated post, with a brownish fur, dry and clean at tip and edges; intense injection of the eyes; urine acid, specific gravity 1·016; albumen, 1-6th; bile in quantity. 12 Sept., 6th Day.—Skin soft, yellow; less headache; more epigastric tenderness; much rachialgia; herpes labialis hæmorrhagica; incoherent; urine acid, specific gravity 1·014; albumen, 1-4th; bile increasing. 13 Sept., 7th Day.—Incoherent, trying to get out of bed; skin of face dusky and of a leaden hue; in a semi-comatose state all the day; epistaxis and bleeding from mouth; no vomiting; urine acid, specific gravity 1·014; albumen, 1-3rd; bile increasing. 14 Sept., 8th Day.—Eyes and skin of a deep yellow; herpes about mouth, hæmorrhagic; incoherent; urine acid, specific gravity 1·014; albumen, 1-3rd; bile increasing. 15 Sept. 9th Day.—Countenance of a deep dark leaden colour; semi-comatose; eyes golden yellow; no vomiting; urine acid, specific gravity 1·016, reddish brown; albumen, 2-5ths; bile in large quantity. 16 Sept., 10th Day.—Some giddiness; no vomiting; no hæmorrhage; made large quantities of urine of a dark colour during the day; slept lying on side; urine, specific gravity 1·016; albumen, 1-5th. 17 Sept., 11th Day.—Not incoherent; face less congested; sweating profuse; slept much during day; urine acid, specific gravity 1·016; albumen, 1-6th. 18 Sept., 12th Day.—Quiet night; vomited some blood in the morning; made water freely; takes his nourishment; countenance anxious; is very low; towards evening became unconscious; breathing stertorous; vomiting black vomit; urine, drawn off by catheter, contains blood. Died at 11 p.m.	- -	18 Sept. 1867 - 12th day of fever.	n leave at Port Antonio, Jamaica. (See Diagram, No. 61, at end of Appendix II.)

TABLE III.—A SUMMARY of the Cases of Yellow Fever admitted into the Royal Naval

No. of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on duty.
62	Able-bodied seaman	20	H.M.S. Jason	8 Sept. 1867	10 Sept. 1867	8 Sept.—Headache; loin pain. 9 Sept.—Albumen in urine. 10 Sept.—Black vomit at 2 p.m., and has since been constant.	10 September.—3rd Day. Slight headache; loin pain; epigastric tenderness; tongue thickly coated in centre, red at tip and edges.

Hospital, Jamaica, between the 27th November 1866 and the 31st December 1867—*continued.*

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
11 Sept., 4th Day.—Considerable febrile excitement; epigastric tenderness; skin dry, yellow; vomiting of a watery fluid containing brown flocculent matter; urine acid, specific gravity 1·012; albumen, 1-5th; some bile.	18 Nov. 1867	- - -	On leave at Port Antonio. (*See* Diagram, No. 62, at end of Appendix II.)
12 Sept., 5th Day.—Burning pain at epigastric region; much prostration; eyes injected and yellow; tongue bright red at tip, and in central furrow; black vomit; skin acted upon by hot-air bath; urine acid, specific gravity 1·012; albumen, 1-4th; bile increased.			
13 Sept., 6th Day.—Slept soundly till 2 a.m; awoke delirious; face of a dusky livid colour; eyes deeply yellow and injected; epigastric tenderness; skin very greasy and yellow; hæmorrhage from mouth; tongue bright red all over; urine acid, specific gravity 1·010; albumen, 1-5th; bile increasing.			
14 Sept., 7th Day.—Black vomit continues; expression of face anxious; eyes deep yellow and skin likewise; bleeding from mucous membrane of mouth; much epigastric tenderness; incoherent towards evening; black vomit continues, and bleeding from mouth; urine acid, specific gravity 1·010; albumen, 1-5th; bile on the increase.			
15 Sept., 8th Day.—Very restless and tossing about in bed during the night; passed two black vomit stools; there is no vomiting, but expectoration of mucus mixed with black vomit; face conjested; skin very yellow and greasy; subsultus; comatose in the forenoon; passed his urine freely; perspired freely after hot-air bath; urine acid, specific gravity 1·010, reddish brown; albumen, 1-3rd; bile in large quantity.			
16 Sept., 9th Day.—Hæmorrhage from mouth and epistaxis continue; hæmorrhage likewise from a sore on the left leg; subsultus more marked; bowels open; stools hæmorrhagic; restless; urine as yesterday, specific gravity 1·010; albumen, 1-3rd.			
17 Sept., 10th Day.—Bleeding from mouth and nostrils profuse; countenance inexpressive, dark, and leaden; eyes and skin of a very deep yellow; tongue bright red, moist; stools hæmorrhagic, of a black vomit nature; semi-comatose in the evening; urine as yesterday, specific gravity 1·010; albumen, 1-3rd; bile in quantity.			
18 Sept., 11th Day.—Restless during early part of the night; slept soundly after; bleeding continues, but in less quantity; stools, black vomit; no headache; some pain of back; ate his food and appeared in spirits; urine continues as yesterday, specific gravity 1·010; albumen, 1-3rd; bile in quantity.			
19 Sept, 12th Day.—Slept well for several hours; awoke restless; countenance more expressive; is livelier; no pain; tongue dry, red and smooth at tip; urine passed freely; stools not hæmorrhagic; urine acid; specific gravity 1·010; albumen, 1-4th.			
20 Sept., 13th Day.—Slept fairly during the night; complains of pain over right parotid gland; no hæmorrhage; no vomiting; is more collected; skin moist, but very yellow; sore on leg looks better; made water freely; tongue red and moist; urine acid, specific gravity 1·010; albumen, 1-6th.			
21 Sept., 14th Day.—Restless night; appears more lively; right parotid gland swollen and painful; no fluctuation detected; stools of a lighter colour; eyes deep yellow; urine acid, specific gravity 1·010; albumen, 1-8th.			
22 Sept., 15th Day.—Weakness, and swelling of parotid gland the chief complaint; urine 1·010; albumen, 1-20th.			
23 Sept., 16th Day.—Restless during night; slept soundly in the morning; swelling of parotid painful, pits on pressure; no fluctuation; urine acid, specific gravity 1·004; albumen, a trace; bile still abundant.			
25 Sept., 18th Day.—More cheerful; is progressing favourably; the swelling of parotid is decreasing.			
30 Sept., 23rd Day.—Gradually improving and gaining strength.			

TABLE III.—A SUMMARY of the Cases of Yellow Fever admitted into the Royal Naval

No. of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on duty.
63	Stoker - - - - -	20	H.M.S. Jason - -	8 Sept. 1867	10 Sept. 1867	8 Sept.—Rigors; headache; rachialgia; suffused eyes; epigastric pain; vomiting all day; albumen in urine on the 10th September.	10 September.—3rd Day. Headache; loin pain; epigastric tenderness; vomiting; tongue white, furred; skin dry.
64	Boy - - - - - -	18	H.M.S. Jason - -	9 Sept. 1867	10 Sept. 1867	Frontal headache; lumbar and epigastric pain; skin hot and dry; albumen in urine; pulse 124.	10 September.—2nd Day. Eyes injected, rachialgia; tongue coated in centre; clean at tip and edges.
65	Boy - - - - - -	17	H.M.S. Barracouta -	7 Oct. 1867	12 Oct. 1867	Rigors; headache; loin pain; nausea; wandering; delirium; albumen in urine.	12 October.—6th Day. Very deaf; frontal headache; rachialgia; eyes yellowish and injected; passed water freely; no vomiting; urine dark yellow, acid, specific gravity 1·016; albumen, 1-25th; a trace of bile.

Hospital, Jamaica, between the 27th November 1866 and the 31st December 1867—*continued.*

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
11 Sept., 4th Day.—Febrile excitement; skin dry, yellow; eyes injected; tongue dryish and coated; urine acid, specific gravity 1·014; albumen, 1-8th; a trace of bile; slightly phosphatic. 12 Sept., 5th Day.—Slight headache; rachialgia slight; black vomit in small quantity; urine acid, specific gravity 1·020; albumen, 1-4th; bile increasing. 13 Sept., 6th Day.—Expression of countenance anxious; skin dry and hot; tongue red and dry; urine acid, specific gravity 1·020; albumen, 1-3rd; bile as yesterday. 14 Sept., 7th Day.—Eyes and skin of a deeper yellow; no complaint; urine acid, specific gravity 1·020; albumen, ¼; bile in greater quantity. 15 Sept., 8th Day.—Slight hæmorrhage from mouth; tongue red but moist; skin greasy; urine, specific gravity 1·020, reddish brown; albumen, 3-5ths. 16 Sept., 9th Day.—Passed large quantities of dark coloured urine; hæmorrhage from mouth continues; urine as above; albumen, 2-3rds. 18 Sept., 11th Day.—Some bleeding from gums; none from mucous membrane of mouth; urine acid, specific gravity 1·018; albumen, 2-3rds; reddish brown. 23 Sept.—Improving; some slight bleeding from nose and gums; eyes and skin very yellow; urine alkaline, hitherto acid, specific gravity 1·006; albumen, a slight trace.	30 Oct. 1867	- - -	On leave at Port Antonio. (*See* Diagram, No. 63, at end of Appendix II.)
11 Sept., 3rd Day.—Great febrile excitement; headache; pain across back; vomiting frequent; insomnia; urine acid, specific gravity 1·016; albumen, 1-15th; a trace of bile. 12 Sept., 4th Day.—Restless; vomiting brown flocculent matter; urine, specific gravity 1·016; albumen, 1-10th. 13 Sept., 5th Day.—Skin greasy, of a dusky yellow; slept soundly for a short time; eyes injected and yellowish; vomiting clear fluid with brown specks; countenance anxious; urine acid, specific gravity 1·014; albumen, 1-10th; bile, a trace. 14 Sept., 6th Day.—Black vomit at midnight; bleeding from mouth; skin yellow; urine free in quantity; black vomit during afternoon; urine acid, specific gravity 1·016; albumen, 1-6th. 15 Sept., 7th Day.—Much bleeding from mouth; perspired freely after hot-air bath. 16 Sept., 8th Day.—Restless; hæmorrhage from mouth continues; skin and eyes deeper yellow; stools like black vomit; epistaxis; urine acid, specific gravity 1·020, reddish brown; albumen, 1-3rd. 17 Sept., 9th Day.—Eyes deeper yellow; one dark stool after enema; no vomiting; no hæmorrhage; urine acid, specific gravity 1·018, dark brown; albumen, 2-5ths. 18 Sept., 10th Day.—Is livelier; eyes yellow; no complaint; urine acid, specific gravity 1·012; albumen, 3-10ths. 25 Sept.—Has progressed daily; to-day no albumen in urine. 2 Oct.—Convalescent.	4 Nov. 1867	- - -	(*See* Diagram, No. 64, at end of Appendix II.)
13 Oct., 7th Day.—Some epigastric tenderness; vomiting of ingesta; skin soft and greasy. 14 Oct., 8th Day.—But little complaint; tongue coated; urine acid, 1·016, dark yellow; albumen, 1-20th; bile in small quantity. 15 Oct., 9th Day.—Water passed freely; sleeps well; urine acid, specific gravity 1·020, dark yellow; no albumen; chlorides absent. 4 Nov.—No urgent symptoms appeared in this case; convalescent.	18 Nov. 1867	- -	(*See* Diagram, No. 65, at end of Appendix II.)

TABLE III.—A SUMMARY of the Cases of Yellow Fever admitted into the Royal Naval

No. of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on duty.
66	Captain, Royal Marine Light Infantry.	33	H.M.S. Constance - -	10 Oct. 1867	12 Oct. 1867	Rigors on the 10th October; vomiting during night of 10th. 11 Oct.—Supra orbital headache; lumbar pain; pulse, 120; tongue furred; temperature of skin high; restlessness.	12 Oct. 3rd Day. Severe frontal headache; expression heavy; eyes injected and yellow; skin dry and yellow; tongue coated white in centre, red at tip and edges; epigastric tenderness; acid eructations; bowels loose; no water passed.
67	Private, Royal Marines -	34	H.M.S. Aboukir - -	11 Oct. 1867	16 Oct. 1867	Rigors; frontal headache; rachialgia; albumen in urine on the 16th October.	16th Oct.—6th Day. Eyes injected, yellowish; skin moist; tongue coated white in centre, red at tip and edges; no headache; urine faintly acid, specific gravity 1·004; albumen, 1-7th; a trace of bile.
68	Ordinary seaman - -	19	H.M.S. Constance - -	24 Oct. 1867	26 Oct. 1867	Rigor on the 24th October, followed by headache and heat of skin. 25 Oct.—No frontal headache; no loin pain; epigastric tenderness; no vomiting; temperature 102°; skin perspiring; albumen in urine.	26 Oct.—3rd Day. Eyes injected, yellowish; 10 ounces of urine drawn off by catheter, acid, specific gravity 1·014; albumen, 1-4th; some bile; somewhat incoherent; no complaint.

Hospital, Jamaica, between the 27th November 1866 and the 31st December 1867—*continued.*

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
13 Oct., 4th Day.—Very heavy expression of countenance; intellect clear; eyes much suffused and yellowish; skin has a soft greasy feel, is yellowish; feeling of heat across the forehead; no pain; rachialgia severe; some epigastric tenderness; acid eructation in the morning, followed by vomiting of a clear acid fluid with small brownish flocculi floating in it; tongue coated white in centre, red at the tip and edges; had an hour's sleep, otherwise very restless. 9.30 a.m.—About half an ounce of dark reddish brown urine was drawn off by catheter, intensely acid, albumen, ½, precipitate whitish. 9.45 a.m.—Hiccough. 10.15 a.m.—Hiccough stopped; vomiting of same matter as this morning. 2.30 p.m.—Hiccough returned after half an hour's sleep; purging; stools of a dark brown colour. 7 p.m.—Black vomit several times; hiccough stopped since 6 p.m. 9 p.m.—Hot air bath caused profuse perspiration; no urine passed; vomiting black vomit of a black tarry consistence; constant desire to go to stool, passing nothing; shortness of breath and oppression of chest. After this he got rapidly worse, vomiting everything taken. At 1 a.m. of the 14th Oct., 5th day, he became delirious and restless, and at 2.15 a.m. he expired.	- -	14 October 1867 2.15 a.m. 5th day of fever.	This officer had spent some days on shore at Kingston; on the 7th October he slept on board the Royal Mail Steamer "Tamar," fr[illegible] since a yellow fever case had recently been sent to hospital. [redacted] (*See* Diagram, No. 66, at end of Appendix II.)
17 Oct., 7th Day.—Pulse intermittent; makes water freely; urine faintly acid, specific gravity 1 001; albumen, a trace. 18 Oct., 8th Day.—Only complains of weakness; no pain; urine acid, specific gravity 1·017, free from albumen. 22 Oct.—Still weakness; no pain. 27 Oct.—Up in ward.	4 Nov. 1867	- - -	(*See* Diagram, No. 67, at end of Appendix II.)
27 Oct., 4th Day.—Restless all night; incoherent in the forenoon; sensible at 1 p.m.; skin perspiring; eyes yellow; skin of chest and abdomen of a dark livid colour; is very weak; pulse irregular; a large quantity of urine drawn off by catheter acid, specific gravity 1·018, reddish brown; albumen 1-5th; bile increasing; delirium towards evening. 28 Oct., 5th Day.—All the water passed is drawn off by catheter; there is always a large quantity; it is dark-coloured, acid, specific gravity 1·020, and contains albumen; slightly incoherent; skin dry; tongue, coated brown in centre, is dry; bowels opened in bed; stools dark-coloured; low muttering delirium towards evening; was placed in wet sheets, after which the skin acted profusely. 29 Oct., 6th Day.—Heavy expression of countenance; respiration somewhat hurried; a sibilant râle mixed with a large mucous râle heard on left side of chest; skin yellow; face and eyes congested; stools and urine passed in bed; the stools like black vomit; effusion in chest increased; towards evening became comatose. 30 Oct., 7th Day.—Gradually became weaker, and died at 2.25 a.m.	- -	30 October 1867 2.25 a.m. 7th day of fever.	Whilst convalescing from a mild form of fever, came in indirect contact with a case of yellow fever on board H.M.S. Constance. The case in question was on board during the 11th and 12th October. (*See* Diagram, No. 68, at end of Appendix II.) Post-Mortem Examination 8 hours after death. Rigor mortis well marked; skin of trunk of a dirty yellow, mottled over chest and abdomen; hypostatic marks over the whole of back and posterior part of neck; no sign of decomposition. *Head.*—Adhesions between dura mater and frontal bone anterior to coronal suture, and posteriorly along longitudinal sinus. Dura mater slightly congested, the vessels of the pia mater somewhat more so; about one ounce and a half of fluid found at base of cranium. Cerebral substance when sliced offered a dotted appearance (puncta vasculosa). The lateral ventricles contained about one dram and a half of fluid in their anterior cornua; the veins of the choroid plexus were turgid. *Chest.*—Recent adhesions of left pluræ; none of right; right lung healthy. The lower lobe of left lung is congested, and the mucous covering of the bronchi is highly so; heart healthy. *Abdomen.*—Tympanitic; liver normal in size and firm in consistence; colour of left lobe natural, of right of a deep chocolate; gall-bladder shrunk, congested internally. Mucous coat of small intestines congested in patches, that of colon is much inflamed, of a purplish colour, studded with patches of ulceration, some of them the size of half-a-crown, raised above the level of the mucous coat, indurated at edges and excavated in centre. *Kidneys* congested when cut into, the supra-renal capsules larger than natural. *Bladder* natural, contained 8 ounces of urine highly albuminous.

TABLE III.—A SUMMARY of the Cases of Yellow Fever admitted into the Royal Naval

No. of Case.	Quality.	Age.	Ship's Name, or whence admitted.	Date of Attack.	Date of Admission into Hospital.	Symptoms observed prior to Admission into Hospital, copied from the Case accompanying Patient.	Symptoms observed on the Day of Admission into Hospital, by the Medical Officer on duty.
69	Surgeon and Medical Storekeeper, Royal Naval Hospital.	39	Royal Naval Hospital, Jamaica.	29 Oct. 1867	31 Oct. 1867	- - - -	- - - -

Hospital, Jamaica, between the 27th November 1866 and 31st December 1867—*continued*.

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
Only seen at 6.30 p.m. of the 31st October, when he complained of weakness; he was slightly incoherent; the eyes were injected and yellow; expression of countenance heavy; tongue coated, moist and tremulous; pulse, 100; temperature in axilla, 102°; some tenderness of epigastrium on pressure; no headache; no lumbar pain; he had that day prescribed for himself ¼ grain of podophyllin, which acted freely. 9.30 p.m.—Pulse 94; skin greasy and moist; slightly incoherent; on attempting to sleep is aroused by unpleasant dreams; no complaint; passed about 3 drams of urine since 6 p.m., of acid reaction; albumen, 2-5ths of test-tube; precipitate nearly white. 1 Nov., 4th Day.—Passed a restless night; bowels frequently opened; stools scanty each time; took his wine and beef tea frequently during the night; about 5.45 a.m. he asked the nurse to give him some lime-juice, and whilst doing so the nurse observed the patient to become suddenly convulsed, knees drawn up to chin, teeth clenched; this lasted for two minutes; when spasm relaxed he was found to be dead.	- -	1 Nov. 1867 - 4th day of fever.	Had been living within the atmosphere of yellow-fever patients. Had had medical care of these cases a month previous to taking ill. (*See* Diagram, No. 69, at end of Appendix II.) POST-MORTEM EXAMINATION, 8 hours after death. Rigor mortis well marked; body well nourished; skin of face, chest, and abdomen of a deep yellow colour; hypostasis of dependent parts of body. *Head.*—Veins of scalp congested and bled freely when divided; calvarium offered some resistance on its separation from dura mater; dura mater itself congested; turgescence of sinuses and of all the veins of cerebrum and cerebellum. The cerebral substance, when sliced, offered numerous puncta vasculosa, and the pressure of the scalpel caused much blood to ooze from these divided vessels. The lateral ventricles contained about 3 drams of serum; the veins of choroid plexus were turgid with blood, whilst the arteries were bloodless. *Thorax.*—On opening this cavity the heart occupied a larger portion than it should naturally; the left lung was compressed and pushed upwards, outwards, and backwards by the heart; the left lung was smaller than the right, and was firmly adherent to parietes of thorax; the anterior and superior part of its upper lobe was covered with a false membrane, furnished with fat; on cutting into this lobe a mass of cretaceous matter, about the size of a walnut, was found at its apex, and was a proof of prior existence of tubercular matter; on the free border of the upper lobe of left lung several of the vesicles were found ruptured, and offered the appearance observed in emphysema. The right lung was of a natural size and healthy in appearance; bronchi of both lungs natural. *Heart.*—The cavity of the pericardium contained one ounce of serum of a yellowish colour; the heart was of a larger size than natural, both cavities and septa being large; a layer of fat covered the heart's surface, and was thicker over the right ventricle; there was likewise a thick layer overlaying the septa between ventricles and between left auricle and ventricle; no blood found in these cavities; the venæ cavæ were gorged with blood; fibrinous clots were found in the ventricles and auricles; one large one was drawn out of pulmonary artery; in the left ventricle fat was deposited on the cordæ tendineæ. *Abdomen.*—The layer of fat covering abdominal muscles measured 1½ inches in some parts; the omentum was surcharged with fat; the liver bulged into thoracic cavity and assisted in diminishing its natural size; it weighed 6 lb. 1 oz., was of a brown colour throughout, somewhat firm, but granular when torn; the clean scalpel became greasy after cutting through its tissue. The *Gall Bladder* contained about 1½ ounces of dark-coloured bile. *Kidneys* buried in fat; substance congested. *Urinary Bladder* contracted; it contained about 2 drams of urine.

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70	Stoker	31	H.M.S. Aboukir	3 Nov. 1867	9 Nov. 1867	Rigors on the 3rd Nov.; frontal headache; loin pain; urine albuminous; epigastric tenderness; tongue coated white; pulse 130; skin hot, dry.	9 November.—7th Day. Slight frontal headache; tongue tremulous, coated in middle, red at tip and edges; eyes injected; urine acid, 1·022, dark yellow; albumen, 1-4th.
71	Gunner	32	H.M.S. Aboukir	22 Nov. 1867	23 Nov. 1867	Headache; general malaise; diarrhœa; vomiting.	23 November.—2nd Day. Headache; vomiting; eyes injected, yellowish; tongue coated, clean at edges; sweating profusely in the evening; urine acid, specific gravity 1·022; albumen, 1-8th; bile, a trace.
72	Blacksmith	18		17 Dec. 1867	21 Dec. 1867	Headache; feverish symptoms 20th Dec.—Albumen in urine.	21 December.—5th Day. Eyes injected and yellowish; tongue coated in centre, red at tip and edges; urine dark brown, acid, specific gravity 1·020; albumen, 1-3rd; a trace of bile.

Sixty-two alone of the above cases were subjects of genuine yellow fever, whilst Nos. 7, 8, 13, 29, 30, 31, 32, 33, 34, and 42, were not so.

No. 7 bore a greater resemblance to typhoid than it did to yellow fever: the early delirium, the purple patches on skin, the enlargement of Peyer's glands at the post-on the last day, that caused it to be classed as yellow fever. The subject of this case was in hospital for the treatment of the disease for which he was admitted at a time

Nos. 8, 13, 29, 30, 31, 32, 33, 34, and 42, were cases of simple inflammatory fever, caused by exposure to the sun, fatigue and surfeit.

Hospital, Jamaica, between the 27th November 1866 and the 31st December 1867—*continued.*

Prominent Symptoms observed during Progress of Disease.	Date of Recovery.	Date of Death. Day of Fever.	REMARKS.
10 Nov., 8th Day.—Tongue cleaner, not tremulous; pulse irregular; no complaint; urine acid, light yellow, specific gravity 1·016; albumen a trace; chlorides scanty. 11 Nov., 9th Day.—No complaint; tongue still cleaner. 13 Nov.—Convalescent.	18 Nov. 1867	- - -	This man states that he had not been on leave for six weeks. (*See* Diagram, No. 70, at end of Appendix II.)
24 Nov., 3rd Day.—Good night; no pain; skin moist; passed 12 oz. of dark reddish-brown urine, acid, specific gravity 1·018; albumen, 1-20th. 25 Nov.—No complaint; no albumen in urine. 26 Nov.—Convalescent.	5 Dec. 1867	- - -	(*See* Diagram, No. 71, at end of Appendix II.)
22 Dec., 6th Day.—Pulse irregular; skin moist, greasy; no complaint; urine acid, specific gravity 1·020; albumen 1-4th; bile increasing. 23 Dec., 7th Day.—Passed 20 oz. of urine, acid, brown, specific gravity 1·020; no albumen; chlorides scanty. 25 Dec.—Slept well; pulse regular. 26 Dec.—Convalescent.	2 Jan. 1868	- - -	(*See* Diagram, No. 72, at end of Appendix II.)

mortem examination seemed to confirm the resemblance. It was the presence of albumen in the urine and the black vomit, both which symptoms made their appearance when yellow fever cases were likewise under treatment, and it may be that the two forms of fever, towards the latter days of his illness, co-existed in his person.

The histological part of the above Table has been drawn up by Dr. Richardson and Mr. Goodman, and by Mr. Goodman since Dr. Richardson's death.

Appendix, No. II.

In the foregoing Table, No. III., a summary of the history of each case is given.

These cases may be divided into a mild and a severe form of yellow fever.

The symptoms which characterised the mild form were, rigors preceded in some cases by general malaise; headache, sometimes severe; rachialgia and pains in the limbs; epigastric tenderness; congested state and yellowness of the eyes; yellowness of the skin; a high temperature of the surface of the body; coated tongue; a pulse quick at times (seldom hard), soft and compressible, and slow at others; nausea and vomiting of ingesta in some, and of bile in others; a constipated or relaxed state of bowels; albuminous urine, and hæmorrhages from the nose and gums.

Those which characterised the severer type of the disease were the same with the above, but in a more aggravated form. They were accompanied with black vomit, hæmorrhages from nose, mouth, and bowels; suppression of urine; eruptions on the skin; insomnia; jactitation; hiccough; subsultus tendinum; delirium and coma.

The state of health of the individuals attacked, previous to the moment of seizure, was as a rule good, and even robust; it was a matter of observation that the more robust the constitution, and the more recent the arrival, the more readily did the individual succumb to the influence of the poison.* Many of these men had gone on leave from their ships in a perfect state of health,† but returned with the infection upon them, or showed symptoms shortly after.

The chills initiated the fever; in a few instances they were preceded by general malaise. They were severe in some cases, and alternated with flushes; whilst in others they were slight and scarcely noteworthy. In every case, however, submitted to observation, these chills were well defined.

Headache proved a distressing symptom in the majority, though slight and scarcely alluded to by several. It had its seat in the forehead, especially in the supra-orbital region; it increased in severity

* The new comers were more liable to the infection, and several melancholy examples occurred to confirm this. Renny, in his history of Jamaica, mentions a song in use in his time, sung by the natives of Port Royal, which proved that they knew the greater liability to the disease of the newly arrived;—

"New come Buckra
He get sick;
He tak fever,
He be die,
He be die."

† It was piteous to see the fine young men who fell victims to this disease, a disease which, in the words of Dante,

"ha natura si malvagia e ria,
Che mai non empie la bramosa voglia,
E dopo il pasto ha più fame che pria."*—*Inferno*, Canto I. 97.

it showed no mercy, no pity, but committed its ravages among the strongest, and seemed never satiated with its victims.

* "So bad and so accursed in her kind,
That never sated in her ravenous will,
Still after food more craving than before."—*Cary's Translation.*

severity for the first days, decreasing as the fever progressed, probably from the sensations becoming blunted with the advance of the disease. By some no mention was made of headache until the third or fourth day of the fever, and no prognosis, whether favourable or fatal, could be formed from the degree of severity of this symptom; for in many of the severe cases it was but little complained of, whilst in the mild cases it was sometimes distressing.

In the cases which terminated fatally, it was mild in eleven, severe in twelve, and no mention made of it in three.

Rachialgia was frequently very severe, and was chiefly confined to the lumbar region.

In some of the cases of partial suppression of urine, it was felt in a greater degree than in those where the secretion was free; though this obtained in the majority, it was not invariably so.

The majority complained of pain in the lumbar region alone, but there were many who experienced pain along the length of the spinal column; this pain was a sign of the toxic effects of the fever upon the spinal cord, in the same way as the headache was a sign of its effects upon the brain.

Epigastric tenderness was met with in a great number of these cases. It was of a burning nature in some, causing much anxiety and distress; whilst in others it was referred to merely as a sense of tenderness, and no more. Several complained of it on the first day of the fever; many, however, made no complaint of it until the fourth day; in these last cases the pain continued during the persistence of the fever. It was intense in those in whom vomiting was urgent, and in many where black vomit occurred.

The expression of the countenance was in the worst cases that of a drunken man; the eyes were heavy and congested, ferrety in several; the face was either flushed and of a livid dusky hue, or pale, haggard, and sallow; an expression of anxiety was distressing to witness in several of the fatal cases, and was observable previous to dissolution.

In a few exceptional and mild cases the eyes were clear; a tinge of yellow might sometimes be observed in these at the posterior portion of the sclerotic coat, when the upper eyelid was raised, and the patient made to look downward.

The eyes were, as a rule, tinged yellow; this tinge was frequently evident where no discoloration of the skin had yet obtained; when the skin did become yellow, the eyes deepened *pari passu* with the skin, though in a greater degree.

In the great majority the skin assumed a yellowness at some stage of the disorder; it varied from a citrine to a golden yellow, and frequently deepened after dissolution. Though this symptom was almost constant, its degree of intensity was not indicative of the downward tendency of the malady, for with convalescence it frequently acquired a very deep hue, whilst in some of the fatal cases, though observable, it scarcely was sufficiently so to make it noteworthy. In a very few cases it was only observed on the day of death.

The skin was always hot, sometimes dry, sometimes moist; the sensation communicated to the touch, when dry, was pungent, leaving

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behind a tingling of the fingers. It continued hot throughout, and its range varied from 99° to 107° (No. 5). The fall of temperature to 98°, provided no urgent symptom was observed, was a sign of approaching convalescence.

The tongue in the generality of the cases, and at the commencement of the disease, was coated with white in centre, and red at tip and edges; as the disease advanced the fur would assume various colours, yellow, orange, and brown; would be moist at one time, at another dry; it had a raw beefy appearance in the very bad cases, and where there was hæmorrhage from the mucous membrane of the mouth and gums, was reddened with blood.

The bowels, at the commencement, were sometimes constipated; diarrhœa at this period was not infrequent; the stools, at first of a natural colour, became light and clayey; in the cases having a hæmorrhagic tendency, they were tinged with blood, and in many of the very bad cases they were black and of tarry consistency, and frequently coincided with the occurrence of black vomit.

The facility with which the blood transuded from the various mucous surfaces did not denote an effort on the part of nature to get rid of the deleterious portion of the disease, but arose, I take it, from a want of energy on the part of the blood itself, and of the tissues which in health were made to retain it.

As a rule, hæmorrhages were always considered with a degree of apprehension, and were of bad augury if they occurred towards the latter period of the disease. Hæmorrhages from the gums, mouth, and nostrils, occurred in many of the cases which had a favourable termination. The gums were soft, spongy, and bleeding in many, and where vomiting coincided with this bleeding, hæmatemesis was simulated. There seemed to be a greater propensity to hæmorrhagic exudation from those surfaces which had been previously affected, as from the urethral mucous membrane affected with gonorrhœa, or from abraded surfaces of the body, as ulcers, or portions of the skin denuded by scratching.

The blood would appear to have undergone a degree of disintegration, and readily oozed out from a laxity of the retaining tissues.

Hæmorrhages occurred—

(From the gums alone,	in 6 cases	(Nos. 17, 18, 21, 23, 25, and 27.)
„ nose alone,	in 4 „	(Nos. 48, 51, 53, and 58.)
„ mouth alone,	in 2 „	(Nos. 43 and 44.)
From gums, mouth and nose,	in 1 „	(No. 10.)
„ gums and mouth,	in 5 „	(Nos. 12, 20, 37, 40, and 63.)
„ gums and nose,	in 1 „	(No. 22.)
„ nose and mouth,	in 3 „	(Nos. 61, 62, and 64.)
From urethra,	in 2 „	(Nos. 36 and 39.)

„ an eruption of herpes labialis, in 5 cases (Nos. 5, 9, 10, 51, and 61.)
„ an ulcer on leg, in 2 cases (Nos. 3 and 62.)
„ hæmorrhoids, in 1 case (No. 48.)

Nausea was observed in many cases, and in several as one of the first symptoms; owing to the great irritability of the stomach, vomiting of fluid, bile, or ingesta, was frequent, and in some of very distressing

tressing significance; it sometimes continued with little interval for two or three days; about the third or fifth day the matters vomited offered an acid reaction, were clear, and contained small brown flocculent specks which floated in it. This form of vomiting occurred in eleven cases, of which it appeared in six without any subsequent black vomit (two of these died), and in five it was the forerunner of black vomit (three of these five died).

Black vomit was observed in twenty-four cases; this symptom was always regarded as one of evil prognosis, yet of these twenty-four cases, five had a favourable issue.

In six of the fatal cases there was no black vomit.

Although the stomach at the post-mortem examination was found, in several instances, to contain a large quantity of black vomit, the lesions of the mucous coat were insufficient to account for its presence. The almost universal healthy appearance of these coats where this matter was largely met with, denoted that it was not from any lesion of the coats themselves that the secretion depended, but from a state of disintegration of the blood, which forwarded the process of exosmosis.

The secretion of urine was in some of these cases free; partial suppression occurred in others, and in three there was total supression.

This secretion varied in colour from a light yellow to a reddish brown, was of acid reaction, and in specific gravity ranged from 1·000 to 1·024. During the height of the fever, and when albumen formed an ingredient part, the specific gravity of the urine varied from 1·008 to 1·020.

Albumen always formed a constituent part of this secretion at some stage of the disease, and bile frequently; the former discoverable by the action of nitric acid and heat, the latter by the iridescence elicited when nitric acid was dropped upon a thin layer of urine spread over a plate: when the bile was in greater quantity, an admixture of chloroform with the secretion to be examined, or a combination of acids (nitric, hydrochloric, and acetic), revealed its presence by the varied colours which were produced. Albumen was observed in every one of the sixty-two cases of yellow fever. Its presence and its continuance during the progress of the disease, whether towards a fatal issue or a recovery, provided continued fever co-existed, was of pathognomic value, for by the co-existence of these two symptoms, this specific form of fever was diagnosed from others bearing in their general aspect some resemblance to yellow fever.

In remittent fever albuminuria is likewise observed, and in the absence of a distinct remission, remittent has been confounded with yellow fever; but as albuminous urine is *only* observed during the very early stage of pyrexia, and again at the period of convalescence, and *not* during the continuance of the remittent fever, a distinction may be made between them.

The remark made by Heller,* "that he has found the albumen (in urine) in something of an inverse ratio to the chlorides," has been verified

* British and Foreign Med.-Chir. Review, July 1853. *J. Warburton Begbie.*

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verified in the examination of the urine of these patients, for where albumen was found abundant, there the chlorides were absent, and with the disappearance of the albumen chlorides again made their appearance.

Of the 62 cases of yellow fever—

Albumen was present in	2	on the	1st	day of the fever.	
,,	,,	11	,,	2nd	,,
,,	,,	19	,,	3rd	,,
,,	,,	14	,,	4th	,,
,,	,,	6	,,	5th	,,
,,	,,	4	,,	6th	,,
,,	,,	4	,,	7th	,,
,,	,,	1	,,	8th	,,

In Case 26 there was total suppression, so that there was no urine available for examination at any stage of the disease.

Albumen made its appearance at first, in the generality, as a trace, gradually increasing with the fever, and as gradually decreasing as the stage of convalescence set in; whilst in the fatal cases this symptom was constant to the last. It was invariably found in the urine of fatal cases examined after death.

Suppression of urine was noted in three cases (Nos. 9, 26, and 60); there was partial suppression in several of the severer cases, but it frequently happened that where no urine was voided, the catheter when introduced drew off large quantities, the bladder being somewhat apathetic in its attempts to relieve itself of its contents.

The eruptions observed were the following: Herpes labialis, which occurred in twelve cases

(4.—5.—9.—10.—15.—39.—43.—44.—46.—51.—56.—61.—)*

and which proved hæmorrhagic in five; of these five only one recovered, four having had a fatal issue. Of the other seven in which no hæmorrhage took place from the eruption, three terminated fatally and four recovered; so that the appearance of herpes labialis in this disease had not the same favourable significance as when it occurs at a certain stage of pneumonia.

Purple patches were seen in No. 7, but as the case was more of a typhoid than a yellow fever type, little importance ought to be attached to their singularity.

Sudamina on the brow occurred in No. 1.

Petechiæ on chest in No. 6, and on wrist in No. 15.

Vesicular eruption on face in No. 24, and an eruption of lichen on chest in No. 53.

Jactitation and insomnia were observed in several, and were proofs of the severity of the cases in which they occurred.

Delirium, subsultus tendinum, carphology, and hiccough, were symptoms of very grave import, and coma was a usual forerunner of death.

It

* The letter H. above the number of the cases denotes those which terminated in hæmorrhage; the numbers underlined, those which terminated fatally.

It was surprising to find how clear the intellect was in some of the bad cases, and even where there was suppression of the urinary secretion, and where uræmia was expected to follow, this clearness was remarked.

Post-Mortem Appearances.

The bodies of those examined were muscular and well nourished. Although under the influence of a hot climate, it was remarked that decomposition was less rapid in the subjects of yellow fever than in those where death had occurred from other causes, as if the poison, though septic in the living individual, possessed an antiseptic property after death, by which the decomposition for a time* was stayed.

The Skin, if yellow during lifetime, acquired a greater intensity of colour after death. The dependent parts of the body to which the fluids gravitated were of a deep blue colour.

Head.—The meninges were in some cases congested; the cerebral substance when sliced offered puncta vasculosa, and serum was sometimes found in the lateral ventricles.

Thorax.— The lungs† and the heart, as a rule, were healthy; a larger proportion of blood was observed in the lungs than was natural.

Abdomen.—The intestines were frequently inflated with gas. Stomach generally contained a quantity of a matter resembling coffee grounds, the matter of black vomit. The mucous membrane was sometimes pale throughout, frequently, however, congested; patches of congestion being at times observed around the cardiac and pyloric orifices. In No. 6 the mucous membrane, after the black vomit had been washed away, was universally and intensely congested. When black vomit was found in the stomach it likewise occurred in the intestines; in No. 1 the whole course of the intestinal tube was lined with it; in several the duodenum and upper part of the jejunum alone were found to contain it: this substance was, as a rule, readily washed away, though in No. 1, after repeated washings, the mucous coat was dyed with it.‡ Marks and patches of congestion of the mucous coat were frequently met with along the intestinal track.

The spleen in all these cases was of a natural size, and to all appearance healthy.

The kidneys appeared natural in some and congested in others. In Case No. 9, the kidneys weighed nine ounces, were firm and dense, and when section was made of them, only two pyramids were seen, one at each end with only faint traces of central ones. In Case No. 6, yellow purulent matter was found in the pelvis of the kidney.

The urinary bladder was contracted upon itself, the walls were thickened, the mucous coat congested, and of an orange red, in Nos.

* Had the internal administration of the sulphites during life any part in this antiseptic property after death?

† In Case 69 a mass of cretaceous matter was found at the apex of the left lung, indicating the pre-existence of tuberculosis and its cure. The heart in this same case was hypertrophied.

‡ When carbolic acid is added to Condy's fluid, an appearance of black vomit is simulated.

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Nos. 1 and 9, and in Nos. 2 and 6 a yellow creamy matter adhered to the mucous coat, similar to that which was found in the pelvis of the kidney of No. 6.

Liver. — In every case of genuine yellow fever the liver was affected, and so invariably was this the case, that were a pathologist called upon to localise this disease from the pathological lesions observed, he would indicate this viscus as its seat. The size of the organ was not perceptibly changed, it was firm to the knife and of a characteristic uniform fawn colour throughout, though in a few instances the fawn colour gave way to a nutmeggy appearance. It was sometimes congested, but, as a rule, there was a want of blood in the liver.*

The absence of bile in the stools, and its presence in the urine, were indications of the sluggishness of this viscus; the hepatic cells were partly obliterated; they were indistinctly seen in some of the cases when portions of the liver were subjected to the microscope, and in some were not seen as all.

The pathological lesions observed at the post-mortem examination of those who died of yellow fever appeared insignificant when compared with the symptoms during life, and the rapid tendency of the malady to a fatal issue. This absence of sufficiently marked pathological lesions has been noted by several, and Dr. Louis, in his admirable report of the cases of yellow fever which occurred in Gibraltar during the epidemic of 1828, says, "en sorte qu'il est absolument impossible d'expliquer, d'une manière satisfaisante, la mort du sujet par l'état des organes, même en tenant compte de la marche de l'affection." †

Microscopical Appearances.

The black vomit, when allowed to settle, divided itself into a clear smoky brown fluid and a dark flocculent deposit, and always gave an acid reaction; crowds of columnar epithelium and cylindrical stomach epithelium were sometimes seen; there were no blood globules, but a reddish-brown yellow amorphous matter, which was no doubt disintegrated blood corpuscles. Tube casts were sometimes seen.

Liver.—A great number of free oil globules, from a very minute size to $\frac{1}{500}$ of an inch in diameter, which usually obscured cell structure. The hepatic cells were indistinct, and not seen at all in some.

Urine, as a rule, gave an acid reaction, but when phosphates were found its reaction was alkaline. Densely granular casts with epithelial debris were observed.

Treatment.—The great object in the cure of these yellow fever cases was to subject the patient to as early a treatment as possible. In

* Inflammation and diseases of the liver, other than yellow fever, are not usual in Jamaica.

† Recherches sur la Fièvre Jaune de Gibraltar de 1828, par M. Louis, Médecin de l'Hôtel Dieu, &c. &c.

In the first stages it was thought necessary to evacuate the bowels, and to get rid of all vitiated secretions that might have lodged in the intestines, so as to prepare the system for the reception of such medicines as were considered proper to counteract the evil effects of the poison.

Nausea and vomiting occurred frequently at the onset; they were combated by the external application of sinapisms, turpentine epithems or fomentations to the epigastrium, and, when obstinate, by the internal exhibition of effervescing draughts, small doses of chloroform and turpentine. Brandy and chlorodyne did good, inasmuch as they quieted the stomach and gave time for the ingestion of food.*

It was desirable to give nourishment as soon as the stomach was able to bear it. It was remarkable how well the worst cases supported it, and even when not retained it assisted in diminishing the violence of the vomiting. Beef-tea, the Extract. Carnis of Liebig, and wine, were among the chief articles of nourishment. Wine well diluted with water proved a pleasant drink, and should be given at as early a stage of the fever as possible; neither the quickness of the pulse, which in these cases frequently depends upon an absence of the stimulating properties of healthy blood, nor the heat of skin, should withhold its administration.

The nourishing matters given during the severe stage of the malady were, beef-tea, fowl-broth, Liebig's extract of beef, milk, arrowroot, with brandy or wine; the yolk of an egg beaten up with wine, milk, or beef-tea. The Extract. Carnis was of value, as it contained a large proportion of nourishing material within a small compass.

The headache sometimes required the removal of the hair and the application of cold lotions.

The hæmorrhagic tendency was partly combated by the internal exhibition of gallic acid, turpentine, matico, sulphuric acid, kino-powder, perchloride of iron applied to the mucous membranes of nose, mouth, and gums, and by ice taken in the mouth (carbolic acid was not tried).

The hot-air bath oftentimes provoked a full perspiration and caused relief in some of the severe cases where the skin was dry, harsh, and pungent to the touch; where no sudorific medicines could be made to act, this bath produced moisture and softness. Wrapping the patient in wet sheets proved effectual in lowering the temperature and giving a feeling of ease; in one case a fall of 4° Fahr. followed this application.

Turpentine epithems were applied to the loins to promote secretion from the kidneys. When there was apathy in the evacuation of the urine, the catheter was introduced to assist in drawing it off.

Against the hiccough, various agents were employed, both externally and internally, and as one failed another was tried; sinapisms, and turpentine stupes to the epigastrium, chloroform in vapour to the same region (by means of a sponge containing a few drops,

* The coloured population of Jamaica believe that if by any means the black vomit can be forced downwards, and prevented from coming upwards, the patient's chance of recovery is greater.

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drops, and a cupping glass or small tumbler); the internal administration of the compound spirits of ether, chlorodyne, chloroform, chloric ether, effervescing draughts, brandy, beef-tea, tincture of opium, and ice.*

In insomnia the exhibition of an opiate was sometimes followed by a happy result. The thirst was quenched by iced water, cold tea, and cooling drinks.

As soon as the intestines were properly evacuated, salines were administered to allay the fever, and amongst them were numbered the sulphite of magnesia and bisulphite of soda. Although I cannot pretend to say that they possessed the highly antiseptic powers which have been attributed to them, the little experience I had of them in yellow fever inclined me to the belief that a degree of benefit was derived from their administration.

The large doses of quinine and calomel considered by some essential in the treatment of this fever were not employed in this hospital, and as the principle of the treatment was to modify the quality without diminishing the quantity of the blood, blood-letting was never practised.

In the worst cases, yellow fever ran a determined course unchecked apparently by any influence, the virulence of the symptoms was in accordance with the aptness of the constitution for the imbibition of the poison, and with the amount of poison imbibed.

In many it was modified by treatment, but in the very bad cases it progressed uninfluenced by and independent of all treatment. It would seem that it pursued in these a given course, withheld by nothing; and as it advanced step by step through its various stages, it went through them uncurbed to the death.

In the following Table the period of incubation of the disease is shown where it could be ascertained with some degree of precision:—

Period of Incubation of Yellow Fever.

Cases.	Dates of Exposure.	Dates when Attacked.	Period of Incubation.
	Between	Between	Between
No. 1 - - - -	19th and 22nd Nov.	26th November -	4 and 7 days.
Nos. 2, 3, 4, and 5 - -	3rd and 7th Dec. -	8th and 10th Dec.	1 and 7 days.
No. 9 - - - -	12th and 16th Dec.	16th December -	1 and 5 days.
„ 23 - - - -	11th and 15th Mar.	15th March -	1 and 4 days.
„ 36 - - - -	25th and 26th Mar.	26th March -	1 and 2 days.
„ 66 - - - -	7th October - -	10th October -	3 days.
„ 68 - - - -	11th and 12th Oct.	24th October -	13 to 14 days.

* Dr. C. Belot of Havanna recommends pressure of the phrenic nerve, near to the hyoïd bone.

In

In No. 1, the officer—the subject of it—was living in the same house with his servant, who was taken ill on the 19th and died on the 22nd of November; he himself was attacked on the 26th, making thus the period of incubation of from four to seven days.

In Nos. 2, 3, 4, and 5, the men had been on shore in Kingston between the 3rd and 7th of December: the seizures were between the 8th and 10th of December, and the period of incubation was therefore from one to seven days.

In No. 9, the subject of it was exposed to infection between the 12 and 16th of December, was taken ill the 16th of December, and consequently this period ranged between one ond five days.

No. 23 had been exposed between the 11th and 15th of March, was taken ill on the 15th; the period with him was between one and four days.

No. 36 was on shore in Kingston on the 25th and 26th of March, and was taken ill on the 26th, so that this period only extended over one day.

No. 66. This officer had been spending some days in Kingston, when, on the 7th of October, he slept on board one of the Royal Mail Steam Company's ships, from whence a case of yellow fever had only recently been sent on shore for treatment. If it could be proved that the disease was contracted by sleeping on board this steamer, the period of incubation could then be fixed to three days.

No. 68. A person who, whilst recovering from an attack of simple continued fever, was exposed to the infection of yellow fever on the 11th and 12th of October, and was seized with the premonitory symptoms of yellow fever on the 24th of October, making the period of incubation from thirteen to fourteen days.

History of the Epidemic.

It was from Her Majesty's ship Nettle that yellow fever was introduced into this hospital at the latter end of the year 1866. This ship had arrived from Morant Bay on the 26th of November and had lain in that harbour for several days, during which time the Lieutenant Commander and his servant took up their quarters in the temporary barracks on shore, which were likewise occupied by Staff Assistant Surgeon D'Arcy. There had been no cases of yellow fever in Morant Bay for the space of three months, but previous to that time yellow fever had prevailed among the shipping at Port Morant, eight miles distant, between which and Morant Bay there is constant communication.

The Lieutenant Commander's servant took fever on the 19th and died on the 22nd of November, and Staff Assistant Surgeon D'Arcy —who had been in attendance upon this man during his illness— became ill and died on the 10th of December.

The Nettle left Morant Bay on the 25th, and arrived in Port Royal on the 26th of November. Lieutenant Jenkins took up his quarters on board Her Majesty's ship Aboukir, was taken ill the same day, and transferred to hospital the day following (27th of November).

Between the 10th and 12th of December six cases were admitted

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from Her Majesty's ship Cadmus; this ship had come from Cape Haytien on the 21st of November 1866, without any infectious disease on board. She was sent up to Kingston on the 3rd of December, for the purpose of allowing the men leave; the whole ship's company had leave between the 3rd and 7th of December. At the time the Cadmus gave leave, several cases of yellow fever had already occurred on board the merchant shipping in Kingston Harbour; these ships had lately come from the island of St. Thomas (Virgin Islands), where yellow fever was prevalent. The sailor when on leave frequently becomes careless as to his whereabouts on shore, and as the choice of a resting-place unfortunately lies between a grog-shop, a brothel, and a crowded lodging-house, it is not to be wondered at that these men fall a more ready prey to any existing evil influences. The lodgings resorted to by the crew of the Cadmus were partly occupied by merchant seamen belonging to ships infected with the disease, and with these men the crew of the Cadmus associated.*

The next ship in which yellow fever occurred was the Aboukir, a large, airy, and well-ventilated ship; she had received the Lieutenant Commander of the Nettle on the 26th of November, who remained on board until the 27th.

When the Nettle arrived in Port Royal, it was considered advisable to clear her out and fumigate her; the crew were berthed in the sail loft in the Dockyard; but as sickness continued among them, they were turned over to the Aboukir on the 27th of February 1867, so that the crew of the Aboukir were in constant intercourse with the crew of the Nettle; but besides this intercourse, the majority of those subsequently attacked with yellow fever had been on leave in Kingston. The crew of the Nettle likewise had leave, and had associated with seamen from the infected ships in port.

The Steady, gunboat, was the next to send yellow fever cases to the hospital. She had come to Port Royal from Black River on the 4th of January 1867, in a healthy condition, and had given leave to her men to visit Kingston; two of her men were taken ill on their return, and were sent to this hospital. The Lieutenant commanding the Steady was likewise attacked, and was admitted as a patient.

Her Majesty's ship Doris arrived in the harbour of Port Royal from Carthagena and Santa Martha, on the 6th of March 1867, in a healthy state. She went up to Kingston on the 14th to give leave to her men, and between the 25th and 27th of March she sent nine cases to hospital.† She sailed for Halifax on 27th of March.

Her Majesty's ship Constance came from Barbados on the 16th of May 1867, and lay in Port Royal Harbour until the 16th of September of the same year; she went out for a short cruise and returned, leaving for Bermuda on the 25th of November 1867. As inducements were offered to these men to remain on board, and not expose themselves

* There is a sailors' home in the City of Kingston, but subjection to any restraint becomes irksome to this class of men when on leave.

† Three of these alone were cases of yellow fever; the other six were of the common inflammatory type.

themselves to the infection on shore at Kingston, only seven of her large ship's company were attacked with the disease.

The first of these seven cases (No. 53) was contracted in the hospital from yellow-fever patients while he was under treatment for chest affection.

The second (No. 54) occurred in the person of one of the medical officers of that ship, who had volunteered his services to the hospital during the prevalence of yellow fever, and who contracted the disease whilst in attendance upon these patients.

The origin of the disease in the next three cases is not very clear.

In the sixth case (No. 66), this officer had been on shore at Kingston, an infected place, and had slept on board one of the steamers where yellow fever had recently occurred.

The subject of the seventh case, whilst convalescing from fever of a simple type, had come in contact with a patient ill of yellow fever on board.

When Her Majesty's ship Jason came into Port Royal Harbour, it was thought advisable to send her to one of the northern ports of the island, for the purpose of allowing her men to have a run on shore, and Port Antonio was chosen for that purpose. She arrived there on the 30th of August 1867. The first case of yellow fever occurred at Port Antonio; on her return to Port Royal, on the 10th of September, she landed five cases for treatment in hospital.

Her Majesty's ship Barracouta sent one mild case to hospital; she had been in communication with the ships from which men affected with yellow fever had been sent to hospital.

Although some doubt may obtain as to the manner in which the crew of the Jason and several of the crew of the Aboukir contracted the disease, the theory of a latent germ, if accepted, may assist in dissipating these doubts. Prior to the arrival of the Jason at Port Antonio, one of the military medical officers had died of yellow fever, at some distance, it is true, from the port; but the fact of a recent death from yellow fever with the subsequent seizure of one newly arrived, would seem to imply the existence of a poisonous germ somewhere in the locality.

In the case of the crew of the Aboukir, the men attacked towards the latter part of the epidemic had not visited Kingston; they had, however, been on leave at Port Royal, and the women they associated with there had come from Kingston, having previously herded with merchant seamen belonging to ships where yellow fever had recently occurred; these seamen, though not infected themselves, carried in their clothes the subtle germs of the disease.*

The outbreaks on board the Cadmus and Nettle have been partly attributed by some to the putrefying process of rotten wood in these ships; there is little doubt that the deleterious effluvia arising from

* It is supposed by Gmelin and Mr. Lyell, that birds, and particularly the Anseres, retain occasionally the minute eggs of fishes among their feathers, and transport them from one lake to another (Prichard, *Phys. Hist. of Man*, p. 67); and may it not equally be supposed, that the more subtle germ of yellow fever can be as easily retained in these women's clothes, and by them conveyed?

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from this process may have had an effect upon the health of their crews; but it must not be forgotten that these men had, previous to seizure, been exposed to direct infection by contact with the merchant seamen of the infected shipping at Kingston; and, admitting that this effluvia assisted in the development of this disease, it did so only as a predisposing cause.

It will be remarked, that between the first admission in the month of November 1866 and the month of February 1867, the fever was confined to the infected individuals sent from the ships, and did not spread to any of the inmates of the establishment. In February, however, the first case occurred in the person of Dr. F. H. Richardson, the Assistant Surgeon of the hospital,* who contracted the infection by unwearied attention upon the sick; and in May, from the circumstance of the hospital having had yellow fever cases constantly under treatment, it would seem to have acquired the conditions requisite for the spread of the contagion; for at this time the Deputy Inspector General (who had been in constant and anxious attendance upon the sick), an officer, and several men, under treatment for other complaints, were seized with fever. (Nos. 47, 48, 49, 51, 53, and 54.)

Four of the medical officers in attendance upon the sick in hospital were attacked, and three fell victims to the disease. (Nos. 16, 51, 54, and 69.)

None of the nurses or attendants were attacked: this may be accounted for by their being men of colour living in the lowlands, who become, from these circumstances, less liable to this disease than the white man.

The history of its appearance among the men of the 6th and 84th Regiments, quartered in the cantonment of Newcastle, in Jamaica, is as follows:—

Early in March 1867 an officer from Up Park Camp and three men of the 2nd battalion 6th Regiment, came sick to Newcastle. Two of the three had got wet and drunk during their visit to Kingston; these men, shortly after their arrival, displayed symptoms of yellow fever, and two died of it. It must be remembered, that at the time of their visit yellow fever was prevailing in Kingston. The 84th Regiment marched up to Up Park Camp on the 3rd of April 1867, and rejoined head quarters at Newcastle on the 27th.

In the month of May, shortly after the arrival of the 84th Regiment at Newcastle, a woman of the regiment died from "fever, very much," in the words of Dr. Clarke, the surgeon of that regiment, from whom the above facts were obtained, "resembling yellow fever."

On the 29th of June a man died suddenly, with black vomit as a symptom; then followed other cases of unmistakeable yellow fever, and the disease assumed an epidemic form.

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* A young officer, full of zeal for his profession and of humanity for the sick; he fell a victim to the disease, unfortunately, too prematurely for science.

TABLE, No. 4.

SYNOPSIS of Admissions, Deaths, and Strength of White Troops, Port Royal and Newcastle, from the 1st of January to the 31st of December 1867.

STATIONS.	Average Strength of the White Troops.	Number Admitted during this Period from all Causes.	Number Admitted for Yellow Fever during the same Period.	Deaths from all Causes.	Deaths from Yellow Fever.
Newcastle - - - -	646·33	739	83	44	31
Port Royal - - - -	82·75	38	5	5	5

In Kingston, the first death from yellow fever during this epidemic occurred on the 14th of October 1866, in the Public Hospital of that city, in the person of a seaman sent from the "Jamaica," a ship which had lately arrived from the island of St. Thomas, where yellow fever was prevalent at the time.

The following Table shows the admissions and deaths in the Public Hospital of Kingston, between the month of October 1866 and the 31st of December 1867:

TABLE, No. 5.

CASES of YELLOW FEVER admitted into the Public Hospital at Kingston between the Month of October 1866 and 31st of December 1867.

MONTHS.		Admissions.	Recoveries.	Deaths.
October -	1866	3	-	3
November	,,	2	1	1
December	,,	2	1	1
January -	1867	10	6	4
February	,,	3	-	3
March	,,	—	—	—
April	,,	2	-	2
May	,,	14	7	7
June	,,	24	18	6
July	,,	15	13	2
August	,,	2	1	1
September	,,	3	2	1
October	,,	5	5	—
November	,,	6	6	—
December	,,	2	1	1
TOTALS - - -		93	61	32

Compiled from Records kindly furnished by Dr. Wm. Steventon, Medical Superintendent of the Public Hospital, Kingston.

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The subjects of the above cases were seamen belonging to the merchant shipping in the harbour. These vessels had come from St. Thomas, an infected place, or had held communication with infected ships.

It was shortly after the first case had occurred in the Public Hospital in Kingston, that cases made their appearance in the city itself. The individuals first affected had lately arrived from St. Thomas, where the fever was prevailing, and on their arrival in Kingston showed symptoms of the disease. Among the first attacked was a clergyman lately returned from a visit to England, having previously resided in the Island of Jamaica for upwards of twenty years, but who, on his way to his home in Jamaica, had touched at St. Thomas.

In his person we have a striking example of the fact, that though an immunity from this fever may be enjoyed by a lengthened residence in Jamaica, that immunity is lost by abandoning that residence for a more northern and a more bracing climate; even a residence in the hills of Jamaica has deprived the individual of this immunity, for it was a subject of remark that several of those attacked had only lately come to Kingston from their usual residence in the hills, and that their stay in Kingston was not of sufficiently protracted a period to have endowed their constitution with the gift of immunity; and this observation was not limited to the white population, for several instances occurred where a coloured person coming to Kingston on a temporary visit fell a victim to the pestilence.

Among those attacked there were captains and mates of the shipping in the harbour; officers and engineers of the Royal Mail Company and other steamers; clergymen in attendance upon the sick; officials lately arrived from abroad; officers of the Royal Engineers and Constabulary; clerks attached to mercantile houses; several of the gentler sex, white and coloured, and others; but it was remarked that the majority were non-residents, or had resided for too short a period to gain that immunity which shielded the inhabitants of Kingston.

I very much regret that my information regarding the number attacked in Kingston and the resulting mortality is not sufficiently precise to enable me to note it with the accuracy required.

Causes.

In the foregoing history we are enabled to trace the infection from Morant Bay to the Naval Hospital; from St. Thomas to the merchant shipping in Kingston; from these ships to Kingston itself; and from Kingston to each man-of-war* that became infected; to the Naval Hospital and to the cantonment of Newcastle.

In the investigation of the origin of a pestilential disease, the question of contagion is always a difficult one of solution. At the first outbreak of an epidemic, where the cases occur singly and where it may so happen that they are the first of their kind witnessed by the

* H.M.S. Jason excepted; she contracted the disease at Port Antonio.

the medical men in attendance,* the circumstances preceding or attending its beginning are not noted, or are lost sight of, and the sharpness of their original outline is consequently lost in the subsequent inquiry.

The evidence which the history of this epidemic offers has much in it that is conclusive towards proving that contagion played some part in its development.

If we refer to the outbreaks which have occurred of late years in Europe, we cannot but accept the fact of their following upon intercourse with ships either infected themselves, carrying infected goods, or coming from infected ports; and whatsoever the climatic or hygienic circumstances which preceded or attended these outbreaks in the places where they appeared, this fact cannot and ought not to be overlooked.

In the month of August the barque Tentadora entered the river Douro (Portugal); she had come from Rio de Janeiro (Brazils)—at that time infected with yellow fever—had on her last passage lost five of her crew from this disease, and after her arrival the infection broke out in the city of Oporto.†

In 1856 the fever again made its appearance in Oporto, after intercourse with infected ships.‡

The epidemic of Lisbon of 1857, which resulted in a mortality of 5,652, likewise owes its origin to intercourse with ships coming from the Brazils.§

The outbreak of St. Nazaire in 1861 was due to intercourse with the brig Anne Marie, lately come from the Island of Cuba.‖

The

* As a proof, a few among the first cases of yellow fever witnessed in Portugal in 1856, were diagnosed as Typhus, complicated with Hæmatemesis.

† The Custom House officials who were doing duty on board after her arrival were the first to become infected. The crews of two ships lying close to the Tentadora, and to the Duarte IV. (which had likewise come from Rio de Janeiro, and which had lost some of her crew on her passage from that port) became next infected. The infection then spread to the inhabitants of Misagaia and Massarellos, suburbs of Oporto, causing forty deaths.—*Relatorio da Epidemia de Febre Amarella em Lisboa, no anno de* 1857, page 9.

‡ In this instance likewise, the Custom House officials engaged in the duties on board the S. Manoel I. and Monteiro I., late arrivals from the Brazils, were the first persons attacked, and it was from them that the infection was conveyed to the city, occasioning 120 cases, of which sixty-three died, fifty-seven only recovering.—*Relatorio, &c.*, page 10.

§ The fever first broke out among the Custom House officials engaged in opening bales of goods which had been brought from the Brazils, and the localities first infected in Lisbon were those occupied by passengers who had come from the Brazils in the steamer "Genova" in the month of July. The steamer "Tamar" had likewise arrived shortly before the outbreak, having had two deaths from yellow fellow fever on her pa sage from the Brazils.

Although the evidence in this history is not as satisfactory as it might be, there is sufficient warrant in the above facts to believe that the epidemic owed its origin to intercourse with ships and goods coming from an infected port.—*Rtlatorio, &c.*

‖ This ship left Havanna on the 13th June, at a time when yellow fever was epidemic; she arrived at St. Nazaire on the 25th July, having lost several of her crew from yellow fever. The labourers employed in unloading her were seized with yellow fellow on the 5th August, and from these men the infection spread to the town, causing forty-four cases, resulting in twenty-six deaths.—(Eighth Report of the Medical Officer of the Privy Council, page 31.)

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The Hecla left Cuba on the 26th July 1865, with cases of yellow fever on board, had successive new cases till towards the end of August, entered Swansea harbour on the 9th of September, with one of her seamen dying, and two others but convalescent from the fever, and was immediately moored alongside a wharf, where she landed her sick, discharged—though not interruptedly—her cargo, and remained stationary till the 28th, when remonstrances, which at last had become irresistible, led to her being removed from within the dock. From September 15th, six days after her arrival, to October 4th, six days after her removal, Swansea witnessed the entirely new phenomenon of yellow fever attacking in succession some twenty inhabitants of the town, besides others who suffered less definitely, or more mildly; and this not indiscriminately over the whole large area of Swansea, but only in definite local relations to the ship; while at Llanelly there also fell sick in the same way three of the crew of a small vessel which had been lying for two days alongside the Hecla at Swansea.—(Eighth Report of the Medical Officer of the Privy Council, page 30.)

In the various epidemics which have appeared in Bermuda, it is stated by Governor Murray, in his Despatch to the Under Secretary of State, dated the 7th of November 1857, that "on no occasion on record has epidemic yellow fever appeared in Bermuda, without having been immediately preceded by the arrival of ships infected with that disease;" and in the epidemic of 1864, where the facts seem to imply importation* Lieut. Governor Colonel Hamley, R.E., in his Despatch to the Right Honourable Edward Cardwell, M.P., dated from Bermuda, the 16th October 1865, says, "But when it is remembered that the fevers appear at intervals, with many intervening years of great salubrity, it is hard to understand how the state of buildings, drainage, &c. can be the cause of the pestilence; because they (the buildings, &c.) remain from year to year much in the same condition, and if they generate and emit a poisonous influence, that influence must operate constantly, though not necessarily, to the extent of producing every year yellow fever. There is, however, no evidence of such constant operation, for except in epidemic years, the population is singularly healthy. I am disposed therefore to reject the idea that the state of our towns and buildings accounts for the appearance of the fever."

Before the discovery of America by Columbus, we have no certainty that yellow fever had ever visited the Old World. Although several authors refer to a disease prevailing in Spain prior to Columbus' discovery, we have no authentic proof that the disease in question was yellow fever. The records of the time are vague and unsatisfactory; the proofs adduced in support of the existence of this disease previous to that period are likewise unsatisfactory. In our own history we have an account of a yellow plague which happened in the reign of Oswy, A.D. 664, and which devastated the Islands now known as the United Kingdom of Great Britain and Ireland,

* Alton, a carpenter (first fatal case in Bermuda), had been working in the same shop with two other carpenters at Nassau, whose deaths from yellow fever were the cause of his removal to Bermuda.

Ireland, but we have no certainty that it was an epidemic of yellow fever.*—(Bede, iii. xxvii.)

If it can be proved that yellow fever had never had existence in Europe previous to the discovery of the Continent of America, and that it appeared in the Old World only after the discovery of the New,† if likewise it can be shown with some degree of accuracy, that a yellow fever zone has actual existence in the New World, and only there, it would follow that importation from that zone is necessary to enable the poison to effect a habitat in places where yellow fever had never before had existence, and the theory of the generation of yellow fever by matters in a state of putrefaction, combined with great heats and other causes independent of the contagion principle, would fall to ground.

Yellow fever is not of constant occurrence in the island of Jamaica; cases happen, an epidemic ensues, and years of truce follow. But during the interval between one epidemic and another, an interval which may vary from two to four or more years, sporadic cases are observed. There is but little doubt that many of the more intense grades of remittent have been classed as yellow fever, and have been published to the world as such; in this assertion I wish to be understood, that it is far from my intention to impute ignorance to any of my colleagues. Remittent fevers sometimes assume a character so closely allied to the specific form of yellow fever, that distinction between them is difficult.‡

But sporadic cases of genuine yellow fever have undoubtedly occurred during the intervals between one epidemic and another, and the difficulty is how to account for their solitary appearance at a time when there is nothing remarkable that is noteworthy, when no apparent pathogenic influence obtains, and when the general health of the community is considered good. Are we to look for their origin in certain modifications of the soil; certain hygienic influences existing at the time, which at exceptional periods, and upon fitting constitutions, develop the specific poisonous germ; or are we to seek for the cause in some imported germ lying dormant,§ and only waiting a proper soil to engraft itself upon?

If

* The plague of Athens (B. C. 430) recorded by Thucydides is thought to have been yellow fever, but it is more than probable that it was no other than the true plague (*Pestis Bubonica*) which had committed great devastations at various periods of the world's history.

† The first well authenticated outbreak of yellow fever in Europe occurred in Lisbon in the year 1723 (upwards of a century after the discovery of America). The description given of it by Simam Felix da Cunha, Physician to João V. King of Portugal, is sufficiently explicit to identify it with yellow fever as it appears at the present day.

‡ The question whether the poison of remittent and that of yellow fever may not run their course in one and the same person, and at the same time, has not had a proper investigation. Hunter's doctrine of the incompatible co-existence of two diseases in one person is no longer tenable. This question is of too extended a scope to be discussed in this paper, but it is a highly important one, and deserving of due consideration.

§ Germs have been known to remain in a state of latency for centuries; if we accept the statements made by the "Doncaster Gazette" the wheat buried with the Egyptian mummies has germinated when planted, after having lain dormant for centuries.

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If the element of yellow fever be generated under certain influences, and only in given localities, acting only upon individuals living in these localities, not possessing contagious properties, and consequently not capable of being transported, it would be difficult to account for the various outbreaks which have fallen under our observation within the last few years (Lisbon, St. Nazaire, Bermuda, Swansea, and Southampton). If, on the other hand, we assume the poisonous nature of the germ, and attribute to it contagious properties readily communicable and easily transportable, whether by human intercourse or by infected clothes, we may then be able to explain many phenomena difficult of explanation otherwise.

We know not what the element of yellow fever is, nor how generated; we cannot say whether it is due to some local action, or to existing vegetable germs, which by transplantation to a fitting soil, or by a process of fermentation, acquire the properties of a poisonous nature; or whether it be an accidental union of circumstances, a graft, so to say, upon certain required meteorological and hygienic conditions; but we do know that, howsoever generated, and whatsoever the element, it is of a subtle nature, easily transportable, and under circumstances readily communicable.

Though science has not succeeded in subjecting to our senses the atom of oxygen or that of other elementary bodies, even through the spectroscope, or through the highest power of the microscope, we do not deny the existence of these atoms. "It is difficult," says Lionel Beale, in his Lectures on the Germinal or Living Matter of Living Beings, "for the mind to realise the wonderful minuteness, the extraordinary number, and the almost universal distribution of living matter. Not only are they found in and upon the earth and water, but the air teems with them, and is, as is well known, the medium by which particles of comparatively large size, and of complex organisation, are carried from the place of their formation to the seat of their development and growth; but of microscopic germs, the air contains vast quantities, differing entirely in their nature, their mode of origin, and in the results of their development and growth. Living particles, giving rise to various forms of microscopic fungi, are wafted by currents of air into situations favorable for their development, and in the same way there is reason to think particles of living matter capable of giving rise to the most serious and fatal diseases of which man is the subject, are carried to an organism which is in a state favourable for their reception and germination"; and so it is with the germ of yellow fever, which though it eludes our sensual grasp, is made known to us by the manifestation of its effects.

Before the outbreak of an epidemic certain requirements are essential. In the investigation of the causes of epidemics, much importance has been attached to the neglect of the ordinary common hygienic and sanitary precautions, and the cry has been "putrefying matters, filth, bad sewage, imperfect diet, bad ventilation, &c." Many writers have attributed to these causes alone, the origin of epidemics, and have believed that to their cumulative force pestilences are due. No one doubts the assertion that fevers of a pestilential nature may break out among a population non-observant of

of the common sanitary laws, but these causes have existence where epidemics have none. Lisbon, for example, between the yellow fever epidemic of 1723 and that of 1857, fulfilled all the above conditions without yellow fever making its appearance. For the ready transmissibility of this disease, the presence of the germ of itself alone is insufficient; some modifications are required to take place in the constitution of the atmosphere, in that of the individual, and in the hygienic disposition of the locality, before any evil influence can be generated.* A poison can do no harm until grafted upon a soil fitted to receive it; the poison in the fang of the serpent, in the sap of poisonous plants, effects no evil in its natural state; the pus on a wound, or the urea in the urine, has no toxic properties until it has entered the blood, and found its proper material to work upon; and something similar obtains with the poison of yellow fever: once imported into a country it seemingly lies dormant and inert until it meets the presence of co-operative agents, its proper soil, and its time for action.

Whilst examining the history of the various epidemics of yellow fever which have occurred during the last twenty years in the Royal Naval Hospital, Jamaica, it was remarked that in several of these outbreaks the cases of yellow fever were limited to the crews of the ship to which they belonged, and that no person belonging to the hospital in attendance upon the infected cases contracted the disease; on the contrary, Dr. Blair, in his history of the epidemic of yellow fever in 1837—1840, mentions the circumstance "that almost every case admitted into the Military Hospital, Georgetown, Demerara, during the epidemic, became yellow fever, no matter what the ailment on admission, and it ultimately became such a terror to the soldiers, that the utmost difficulty was experienced in persuading them to enter it when sick."

The conditions of the two hospitals were different; in the first instance the Naval Hospital was in a healthy state, the required conditions for the development of the disease were absent, and the contagious germs rendered consequently inert.

In the second instance, men sent to the Military Hospital for any disease, "no matter what the ailment on admission," contracted the disease after admission; a focus of infection must have had existence in the hospital itself and the individual admitted, predisposed as he was by debilitating influences, proved an apt soil for its reception.

When the ill-fated Eclair arrived in England in September 1845, with yellow fever on board, it was proposed by Sir John Richardson, at that time the Inspector General of Hospitals and Fleets, to remove the sick to a wing of Haslar Hospital to be appropriated exclusively to them. The hospital at the time was healthy, well-conditioned, and in every respect unfavourable to the spread of the infection, and had the proposition of that noble-hearted physician been carried out with the precautions he intended, there is every reason

* The College of Physicians of Philadelphia, in 1793, remarked that "the contagion of the disease may be taken into the body and pass out of it without producing the fever, unless it be rendered active by some active cause."—*La Roche on Yellow Fever*, vol. i. p. 70.

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reason to believe that the fever, contagious though it was then, as it is now, would have limited itself to the crew of the Eclair.

The adherents of the Bancroft doctrine uphold that yellow fever and remittent fever are mere varieties, depending upon the same cause, and that by a various degree of intensity of the cause, fevers, now of a continued yellow fever type, now of a remittent, are developed. Though this theory has its fascination, and though many sound thinking and conscientious men have given it their consideration, there are arguments which are opposed to its acceptance.

In localities where a redundant vegetation obtains, where morasses and mud-pools send forth their exhalations under a burning sun, where moisture, heat, and other causes combine to produce fermentation and putrefaction, fevers of a remittent and intermittent type prevail, but no yellow fever is generated. If filth, bad drainage, imperfect ventilation, poor diet, extreme heat, and swampy marshy soils, be the chief agents in the generation of the specific form of yellow fever, then would the disease be found luxuriating among the inhabitants living about the swamps of India, of Siam, and of China; but though remittent fever is met with in its worst form in these localities, yellow fever has no existence.

Where yellow fever does prevail, where it may be said to have its habitat, viz., the shores of the Gulf of Mexico, the northern and north-eastern shores of South America, the same conditions are observed as those noted above, namely: swamps, tropical heat, with redundant vegetation, &c.; but even here yellow fever does not always prevail, whilst fevers of a remittent and intermittent type are at fixed periods of the year met with.

If, as is supposed, yellow fever is but the result of the action of a greater degree of intensity of the same cause which produces remittent fever, it would follow that remittent would not be the deadly fever it frequently is, and mild forms of yellow fever would never fall under observation. The fact of yellow fever following remittent does not argue a dependence, it merely implies a coincidence, a poison seizing upon a constitution predisposed by disease.*

We find a difference between these two diseases in their habitat and their symptoms.

Remittent fever has its habitat in every part of the world provided the climate is hot and the grounds low and marshy.

Yellow fever has its habitat on the shores of the Gulf of Mexico, the northern and eastern shores of South America.† (*Vide* Map.)

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* Unless it be admitted that both poisons may co-exist in one and the same person, and may run their course together.—(*Vide* foot-note, page 123.)

† Yellow fever is called by some, American Typhus.

THE HABITAT OF YELLOW FEVER
Shown by the yellow line.
NORTH AMERICA
TEXAS
GEORGIA
FLORIDA
GULF OF MEXICO
CUBA
YUCATAN
MEXICO
BRITISH HONDURAS
GUATEMALA
HONDURAS
NICARAGUA
COSTA RICA
VERAGUA
Panama Bay
NUEVA GRANADA
Cartagena
WEST INDIAN OR CARIBBEAN SEA
VENEZUELA
SOUTH AMERICA
TRINIDAD
ENGLISH GUAYANA

Remittent Fever.	Yellow [illegible]
Observed in low marshy grounds and hot climates.	When communicated in [illegible] climates and at great heights.
A slight and ill-defined cold stage.	Chills always observable initiating the disease.
Remission in the morning.	No remission, but a continued fever throughout.
Abstraction of blood tolerated.	Abstraction of blood not tolerated.
Albuminous urine the exception.	Albuminous urine the rule.
Spleen enlarged.	Spleen not affected.
Liver not affected.	Liver invariably affected.
Suppression of urine not frequent.	Partial or total suppression of urine the rule.
Hæmorrhage from the stomach, in bad cases, the exception.	Hæmorrhage from the stomach in bad cases the rule.
Death never before the seventh day.	Death common on the third day.
One attack gives no immunity from future ones.	One attack affords an immunity from future ones.
No immunity from an attack after any number of years' residence.	Immunity almost perfect after three years' constant residence in the lowlands.
Negroes and the coloured population as subject as the whites.	But rarely attacks the negro; and, as the shade of colour deepens, so is the chance of liability to the disease less.
Is not of a contagious nature.	Is of a contagious nature.
Antagonistic power of quinine beyond the reach of question in remittent fever.	Quinine useless in yellow fever.
Convalescence protracted.	Convalescence less protracted than in remittent fever.
Remittent frequently merges into intermittent.	Yellow fever never merges into intermittent.

In yellow fever there is a peculiar smell arising from the infected person, not observable in persons affected with remittent.

It is logical to conclude, from the above differences, that yellow fever is an entity *sui generis*, arising from causes distinct and different from those which produce remittent fever, and consisting in a specific poison engendering a specific disease.

With the belief, therefore, that yellow fever is of a highly contagious nature, and, like other pestilential diseases, capable of being imported from country to country, carrying devastation in its course, and, by the loss of life which follows, destroying the props which support and advance the interests of commerce, the administration of so serious a trust as the public health of the community becomes a matter of consideration. Much has been said against quarantine: the measures formerly adopted with a view of keeping out contagion were harsh and oppressive, and these harsh measures have been adduced as arguments against its establishment. Like many other questions, it has its advocates and opponents; its adoption by the major part of the civilised nations of Europe is, however, a proof of the general belief in the power it possesses to repel an infectious

 invasion,

[illegible]nd its institution among them argues a nation's trust in its [illegible]y.

From the belief which obtains with some, that yellow fever is endemic in this island, and that the attempt to keep it out would be but a matter of supererogation, restrictive measures have not been put into practice; but from the chain of facts which has been detailed, the question naturally arises whether an outbreak in the Royal Naval Hospital at Port Royal and in the cantonment of Newcastle, had been probable had restrictions been placed upon the intercourse between the infected ships, and had the crews of the men-of-war and the soldiers been prevented from visiting Kingston during the prevalence of yellow fever.

If, for augument's sake, we were to admit the endemicity of the disease, it would seem a natural sequence that to add infection to infection would be to add fuel to an existing fire, or, in other words, that the importation of a fresh virus would give fresh virulence to an existing one. A ship having a number of yellow fever cases on board would be more liable to import the disease in a concentrated form, and it is to importation by such ships that many of the epidemics which have raged in Jamaica owe their origin.

Though there be opposing interests to the common sense solution of this question, viz., restrictive measures; to those entrusted with the public safety, the duty for action should be imperative and irrespective of these interests.*

We do admit that quarantine cannot be carried out, in the words of the Medical Officer of the Privy Council, "with the precision of a chemical investigation;" but we believe that its adoption, with some modification, may effect much towards diminishing the spread of contagion. By the removal of the sick from an infected ship into an establishment possessing all the comforts and appliances of a hospital, by subjecting the ship itself, after having landed passengers and cargo, to a system of purification and disinfection, as much as can be expected will be done, and though these measures may not prove mathematically efficient, a step in advance will have been made towards asssisting in stamping out a disease which is the bane of the white man in this island.†

The above opinions upon the contagious properties of yellow fever have been deduced from the facts which have fallen under observation, and though they may have only the semblance of truth, they are ventilated with the hope that others more able, and to

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* The story told of the American Lieutenant who took care that his duty should be carried out honestly, irrespective of other interests, may find a place here.

Stationed on the forecastle of his frigate, this officer discovered that the ship must inevitably go on shore if the course she was steering was persisted in; he therefore reported the circumstance to his Captain, but being told—somewhat peremptorily—to go forward and look after *his* part of the ship, he obeyed; gave orders to let go the anchor, and, when safely anchored, came aft and reported *his* part of the ship safe.

† The establishment of quarantine in no ways implies a relaxation of the common sanitary and hygienic measures; these, being of the first and greatest importance, are to be insisted upon and energetically carried out before any quarantine enactment.

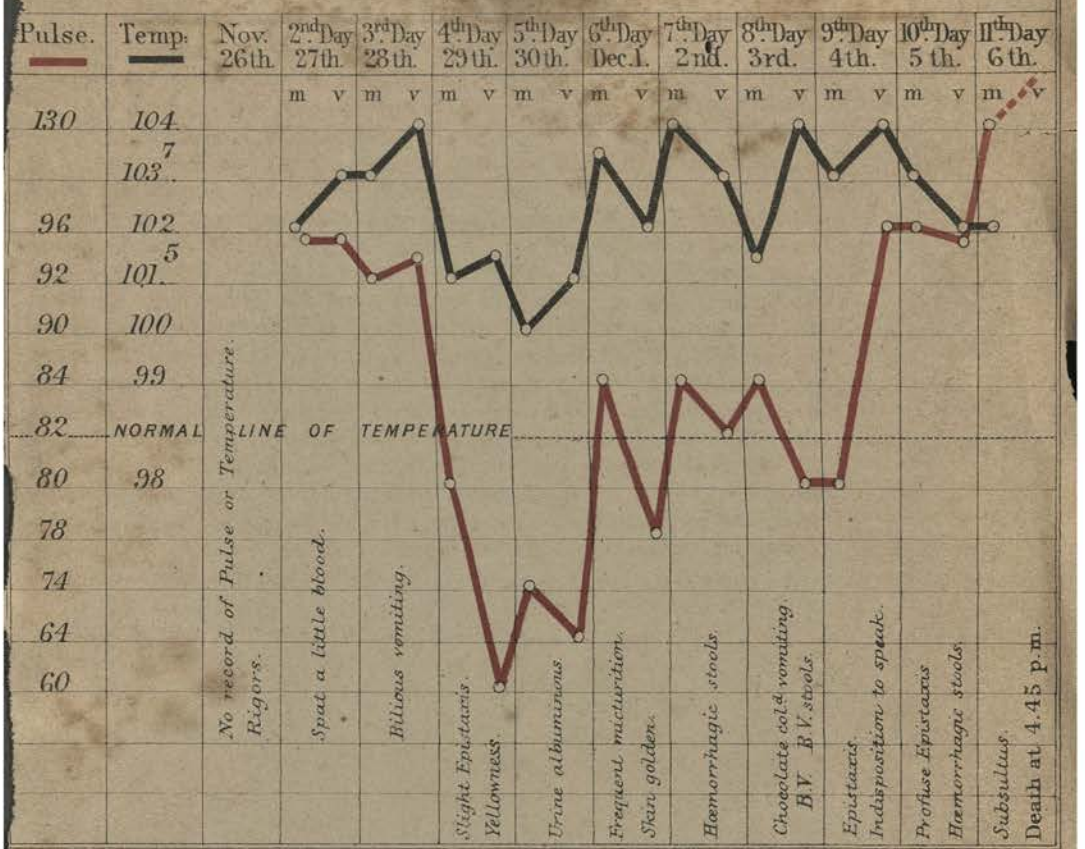
to whom more opportunities have been given, may follow the question with greater energy, and with some purpose towards solution.

As the discovery of the causes of disease has conferred great benefit upon mankind, it becomes the duty of every observer to try and trace fevers to their causes, so as to be able to contend with them, and, if not destroy, at least to abate the virulence of their effects; and the fear lest the theory given in explanation be criticised as absurd, should not withhold its publication in the proper quarter.

Much in medicine is speculative, and much is still desired to unravel the mystery which shrouds the causes which generate yellow fever. If precise data, such as those supplied by the sciences of astronomy and geology were furnished to guide us in our obscure path in medicine, we might then be able to arrive at more correct conclusions; but it is to be hoped that by persevering experiment in physiological and pathological research, it may yet be given us to raise the veil, and by a better knowledge of the cause to be able to stem and limit the progress of this disease, and thus assist in diminishing the dire effects which have proved so fatal to our white population in the West Indies.

N°1.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



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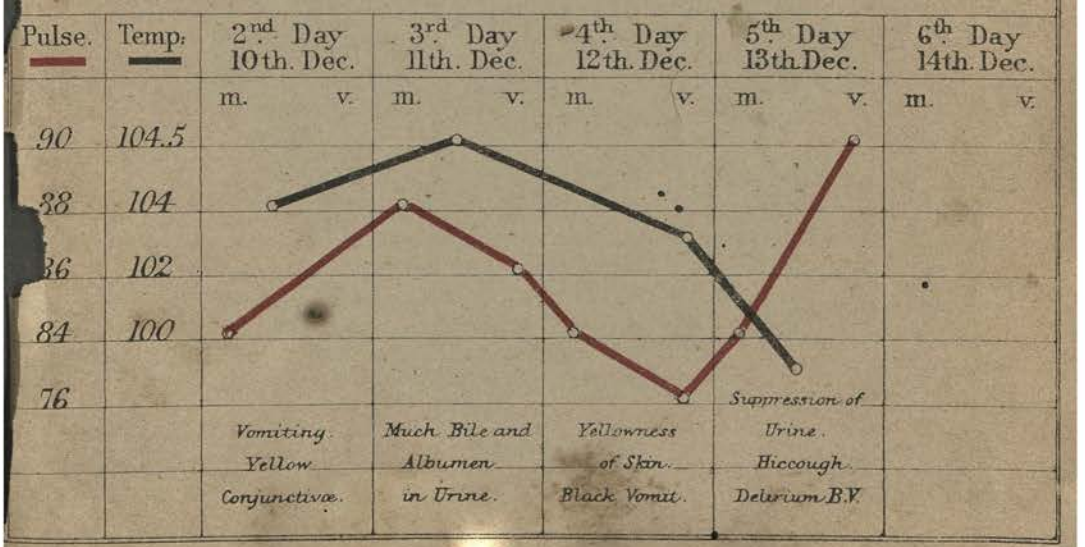

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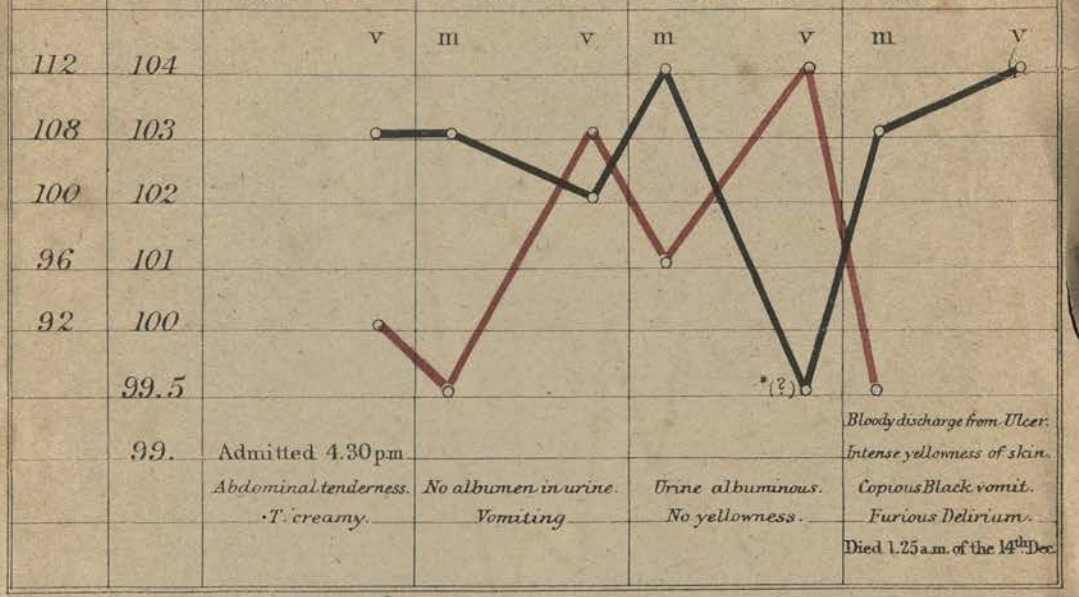
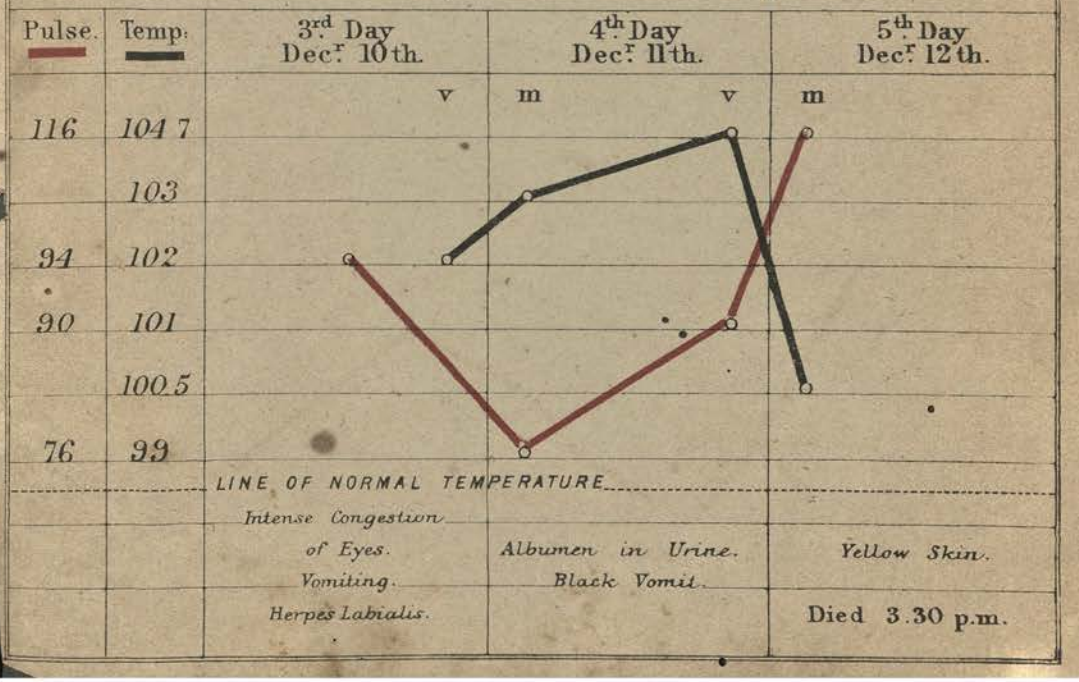


* Evening observation doubtful.

Nº 4.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



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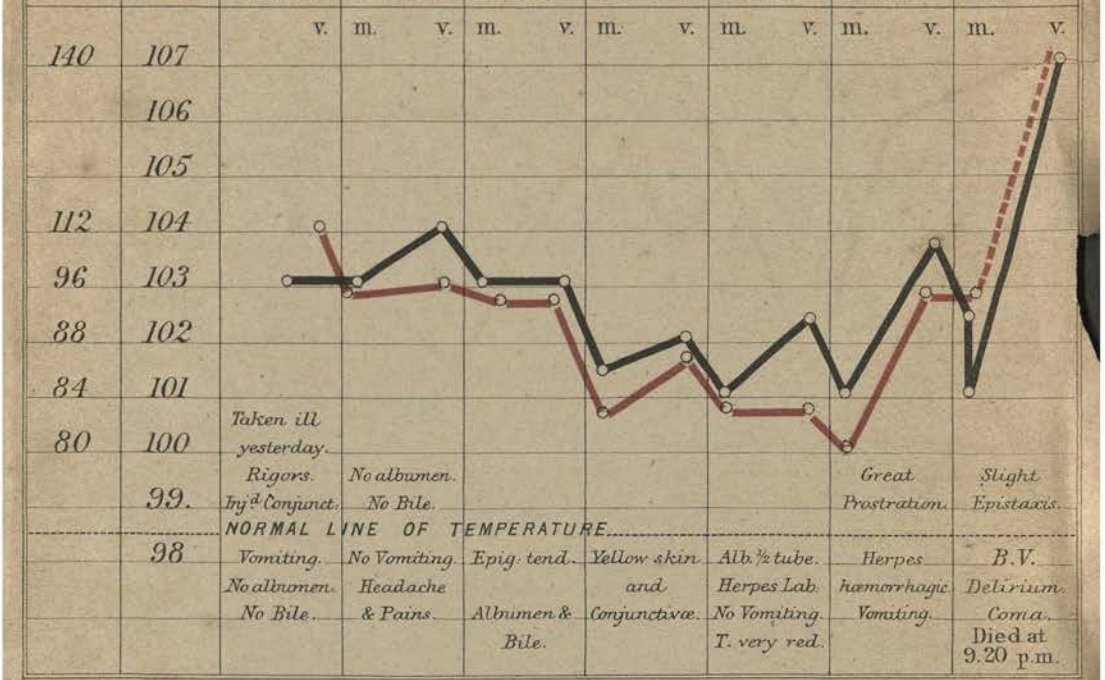

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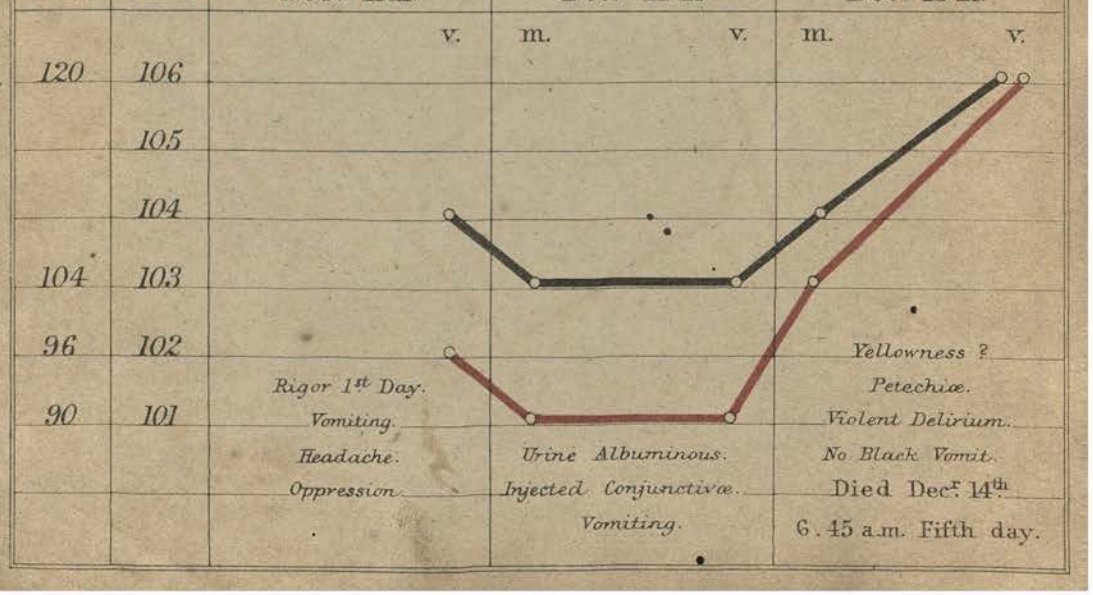
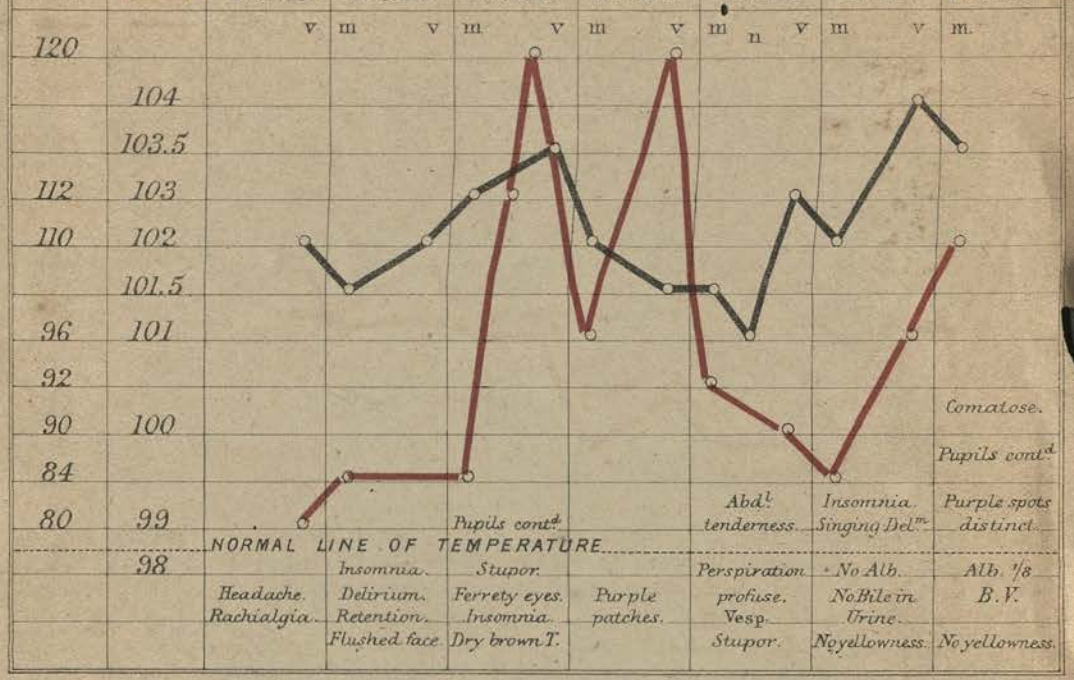
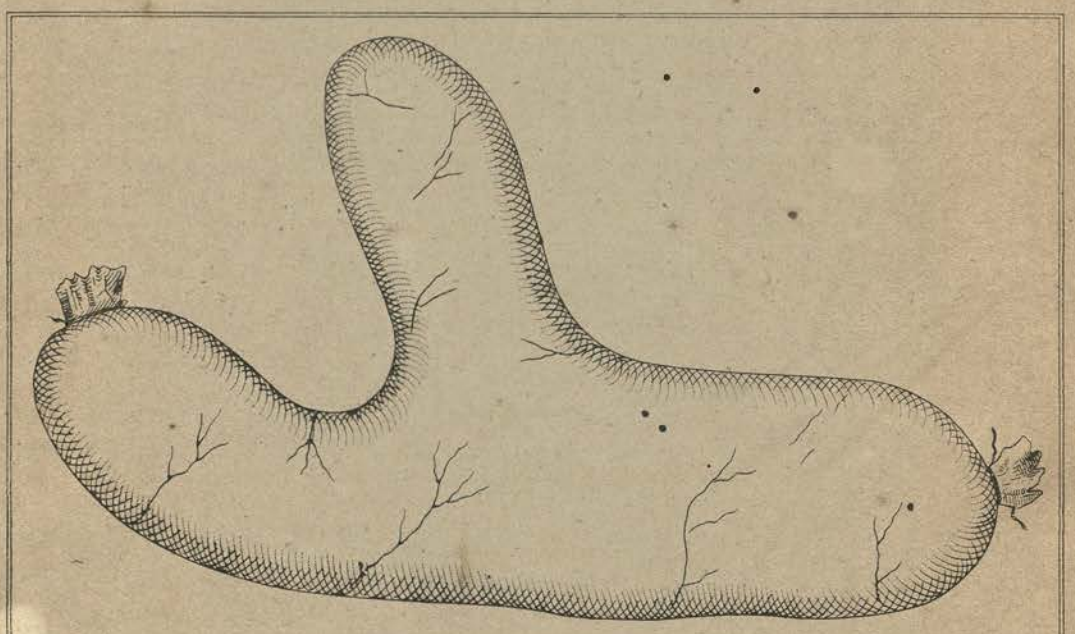


DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



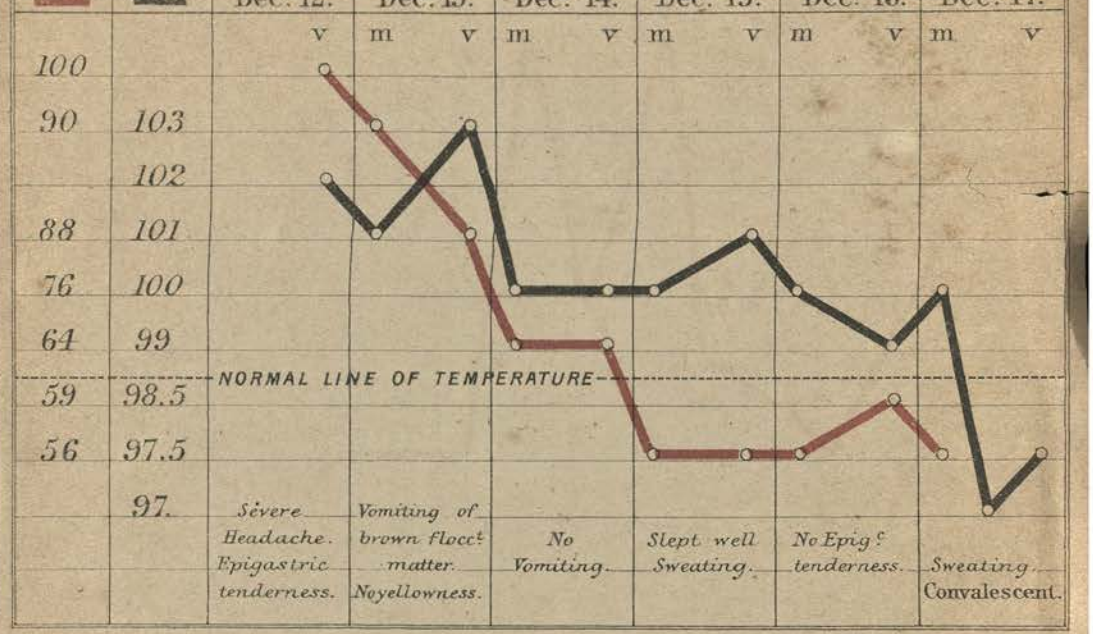


DIVERTICULUM FROM ILEUM.

Natural Size.

Nº 8.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



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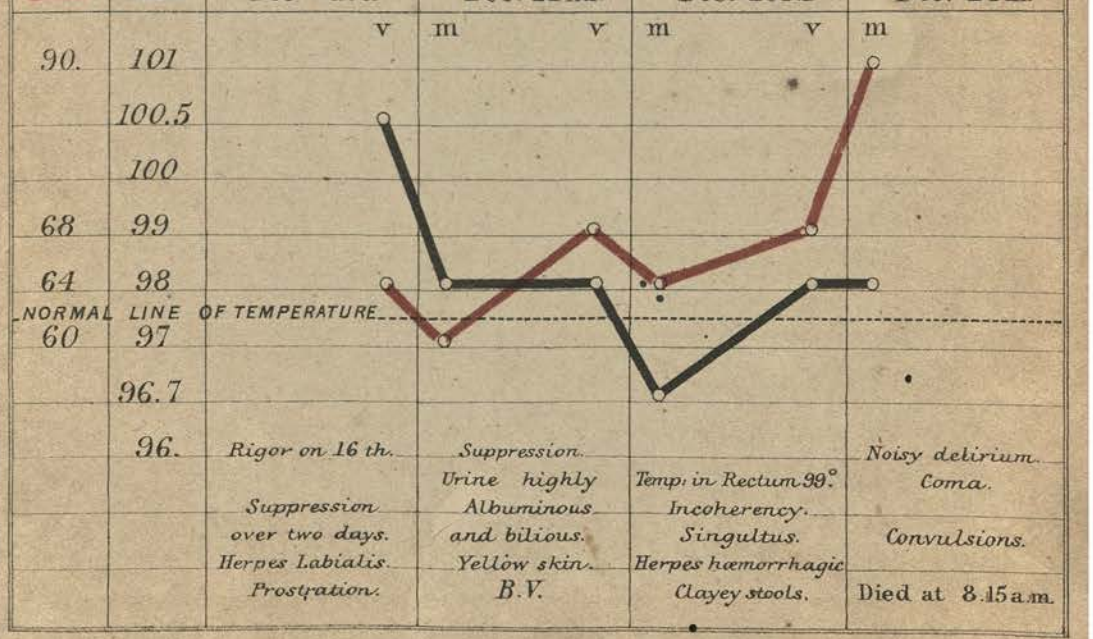

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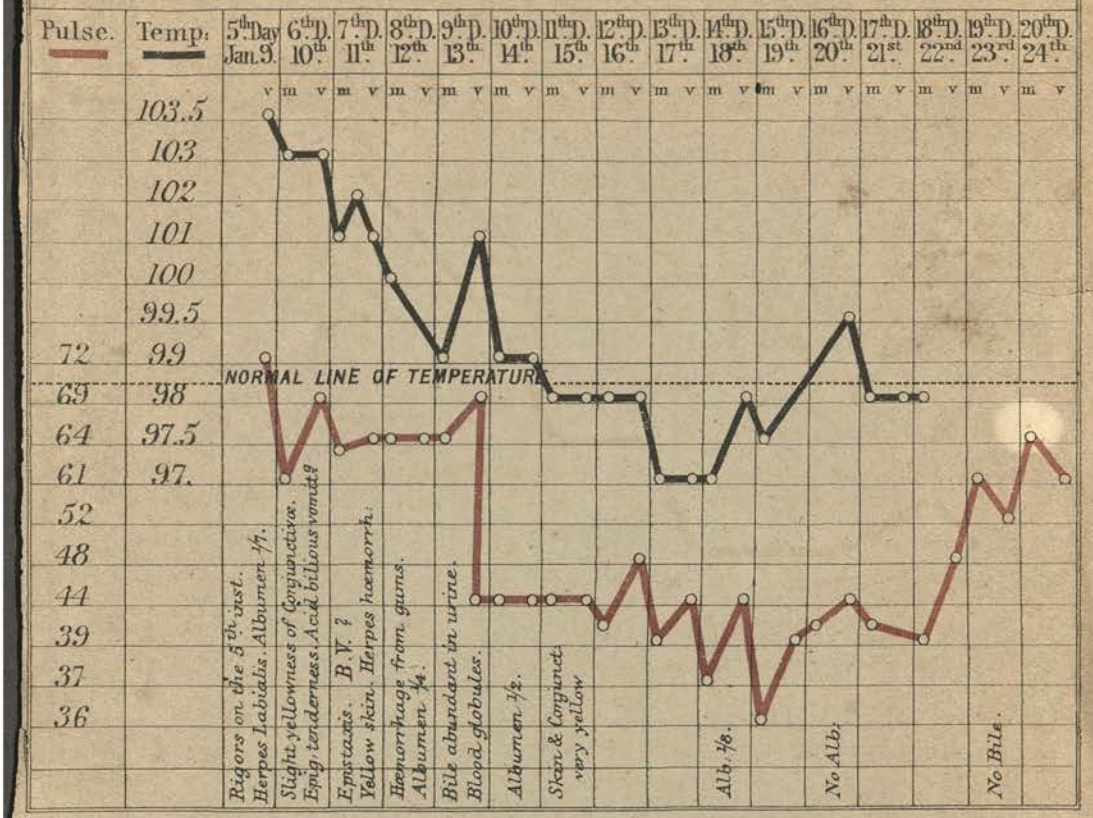
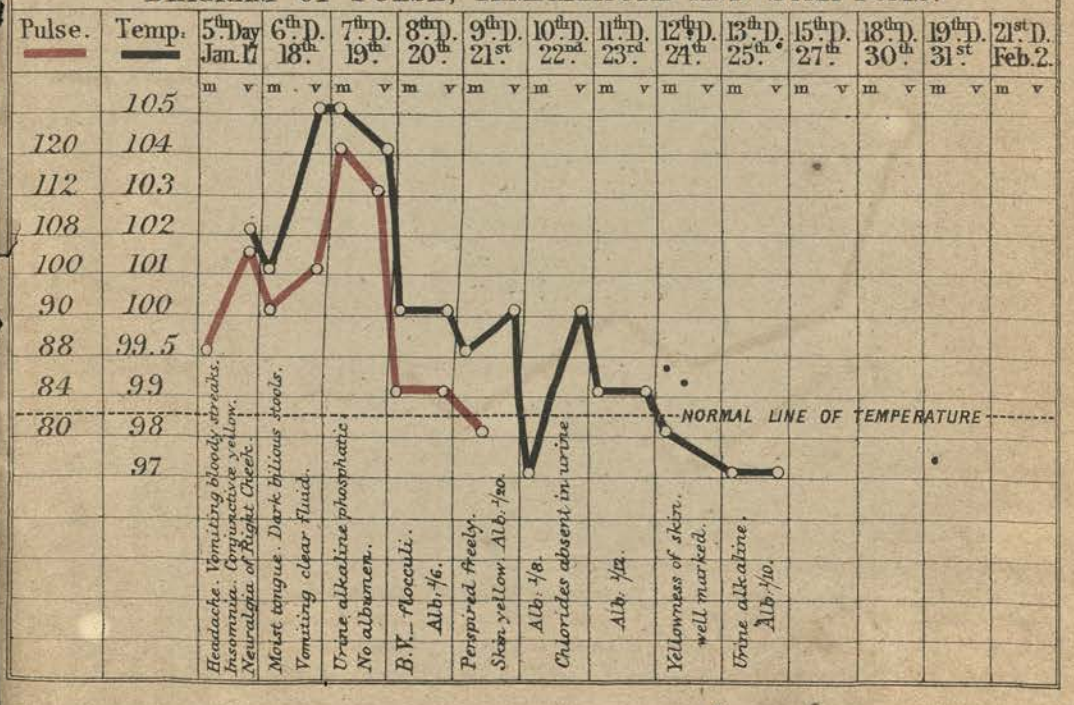


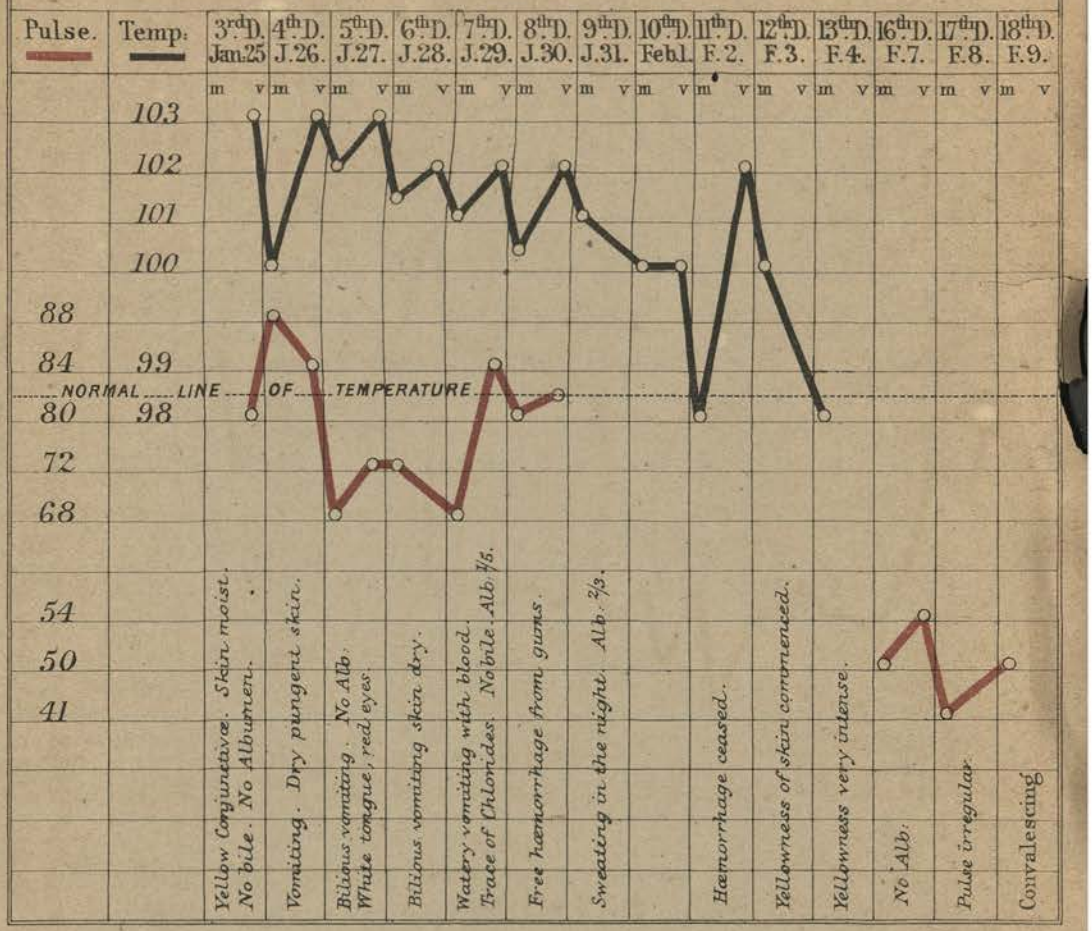
N° 11.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



Nº 12.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



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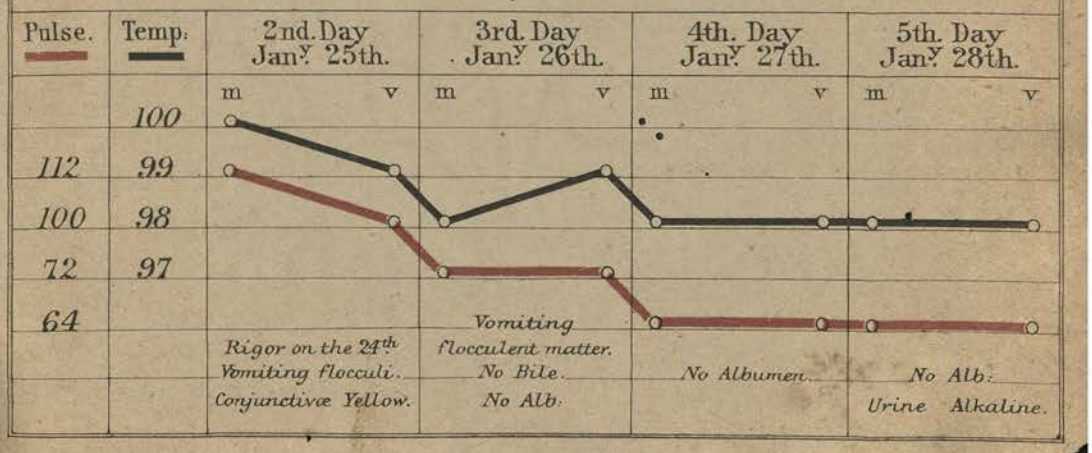


Nº 14.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.

Pulse.	Temp.	4th Day Feb. 1.	5th Day Feb. 2.	6th Day Feb. 3.	7th Day Feb. 4.	8th Day Feb. 5.	9th Day Feb. 6.
		m v	m v	m v	m v	m v	m v
80							
60	103						
56	101						
52	100						
		NORMAL LINE OF TEMPERATURE					
49	98						
	97	Rigor 28th Jan. Vomiting. Urine Albuminous.	Conjunctivæ congested. Hæmorrhage from anus.	Alb. ½. No hæmorrhage			Alb. 1/16. Feb. 8th Convalescent.

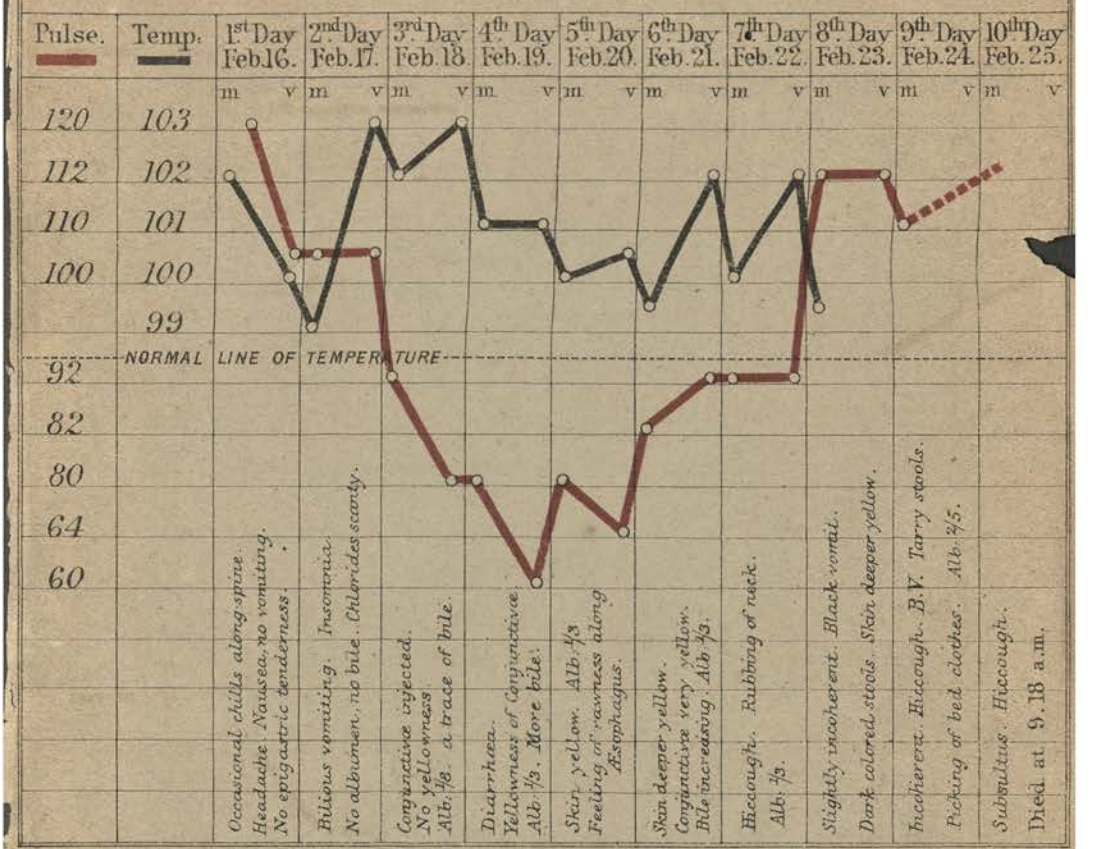
Nº 15.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.

Pulse.	Temp.	1st Day Feb. 8.	2nd D. F. 9th.	3rd D. F. 10th.	4th D. F. 11th.	5th D. F. 12th.	6th D. F. 13th.	7th D. F. 14th.	8th D. F. 15th.	9th D. F. 16th.	10th D. F. 17th.	11th D. F. 18th.	12th D. F. 19th.	13th D. F. 20th.	14th D. F. 21st.	15th D. F. 22nd.	16th D. F. 23rd.
		m v	m v	m v	m v	m v	m v	m v	m v	m v	m v	m v	m v	m v	m v	m v	m v
138	103																
120																	
100	102																
94	101																
92	100																
88	99																
		NORMAL LINE OF TEMPERATURE															
86	98																
84	97																
80																	
76																	
72																	
70																	
68																	
66																	
64																	
60																	
58																	
56																	
		Headache. General langour. Vomiting.	Vomiting bilious. Rachialgia.	No epigastric tenderness. Eyes congested.	Herpes Labialis. Red spots on wrists & back. Acid odour from skin and breath. Albumen ½.	Purging. Alb. 1/8.	Eyes yellow. Alb. ½ with bile in urine.	Tongue less coated. Alb. 1/6.	Skin yellow. Alb. 2/5. Vomiting with specks of blood.	Tongue reddish brown. Albumen 1/2.	Skin moist, yellowish. Alb. 1/3. Gums slightly swollen.	Skin & eyes deeper yellow. Alb. 1/6.	Alb. 1/12. S. moist very yellow.	Alb. 1/18.	Alb. 1/18	Alb. 1/20	Alb. a trace Convalescent.

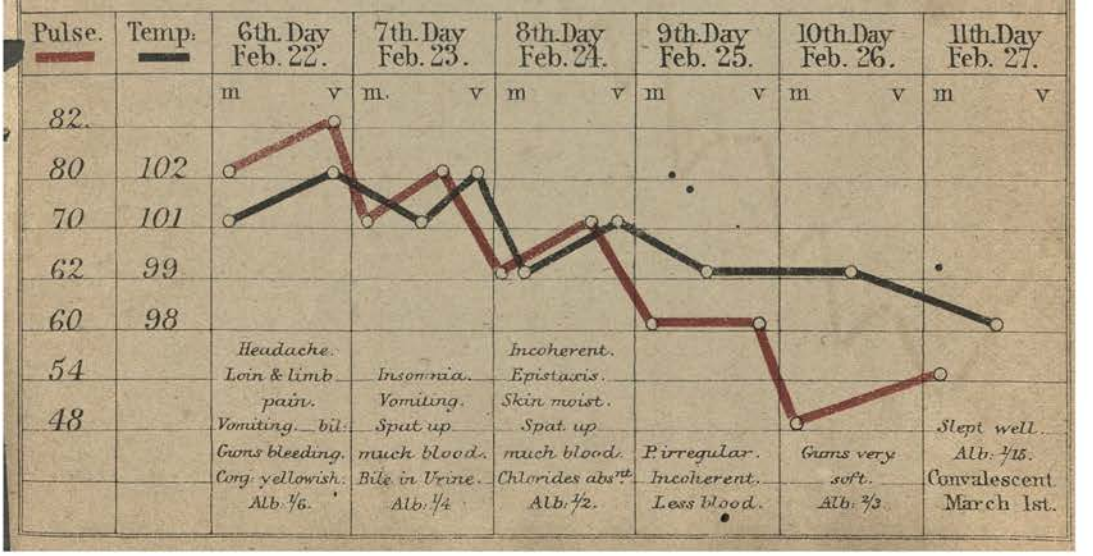
N°16.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.


Pulse.
Temp.
1st Day Feb. 16.
2nd Day Feb. 17.
3rd Day Feb. 18.
4th Day Feb. 19.
5th Day Feb. 20.
6th Day Feb. 21.
7th Day Feb. 22.
8th Day Feb. 23.
9th Day Feb. 24.
10th Day Feb. 25.
m v
120
112
110
100
103
102
101
100
99
NORMAL LINE OF TEMPERATURE
92
82
80
64
60
Occasional chills along spine. Headache. Nausea, no vomiting. No epigastric tenderness.
Bilious vomiting. Insomnia. No albumen, no bile. Chlorides scanty.
Conjunctivæ injected. No yellowness. Alb. 1/8. a trace of bile.
Diarrhœa. Yellowness of Conjunctivæ. Alb. 1/3. More bile.
Skin yellow. Alb. 1/3 Feeling of rawness along Œsophagus.
Skin deeper yellow. Conjunctivæ very yellow. Bile increasing. Alb 1/3.
Hiccough. Rubbing of neck. Alb. 1/3.
Slightly incoherent. Black vomit. Dark colored stools. Skin deeper yellow.
Incoherent. Hiccough. B.V. Tarry stools. Picking of bed clothes. Alb. 2/5.
Subsultus. Hiccough. Died at 9.18 a.m.

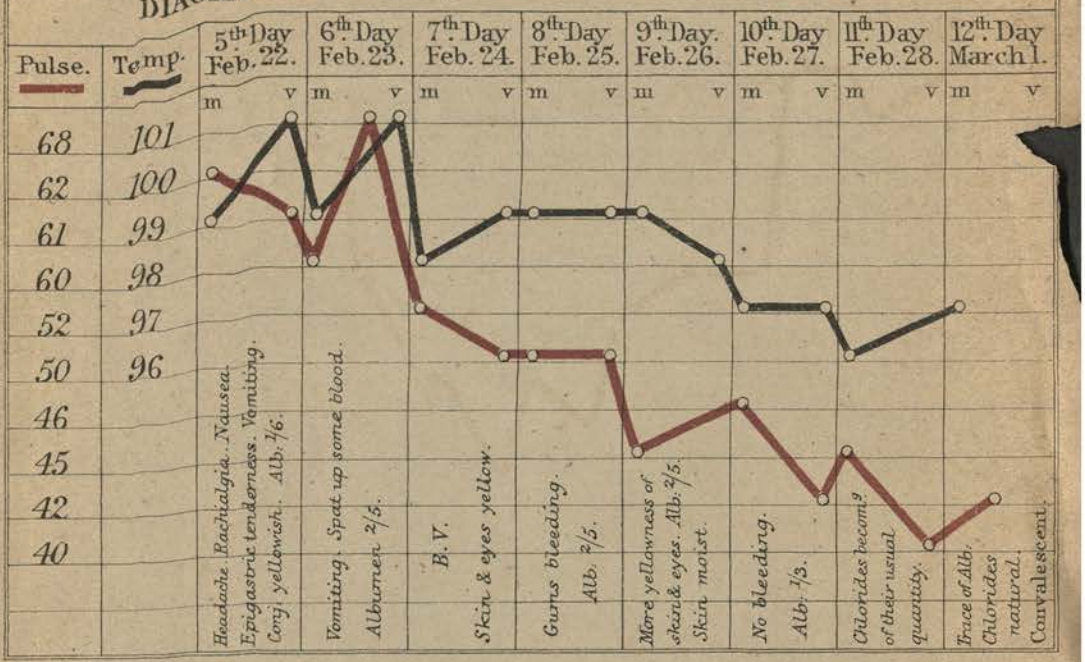
N°17.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



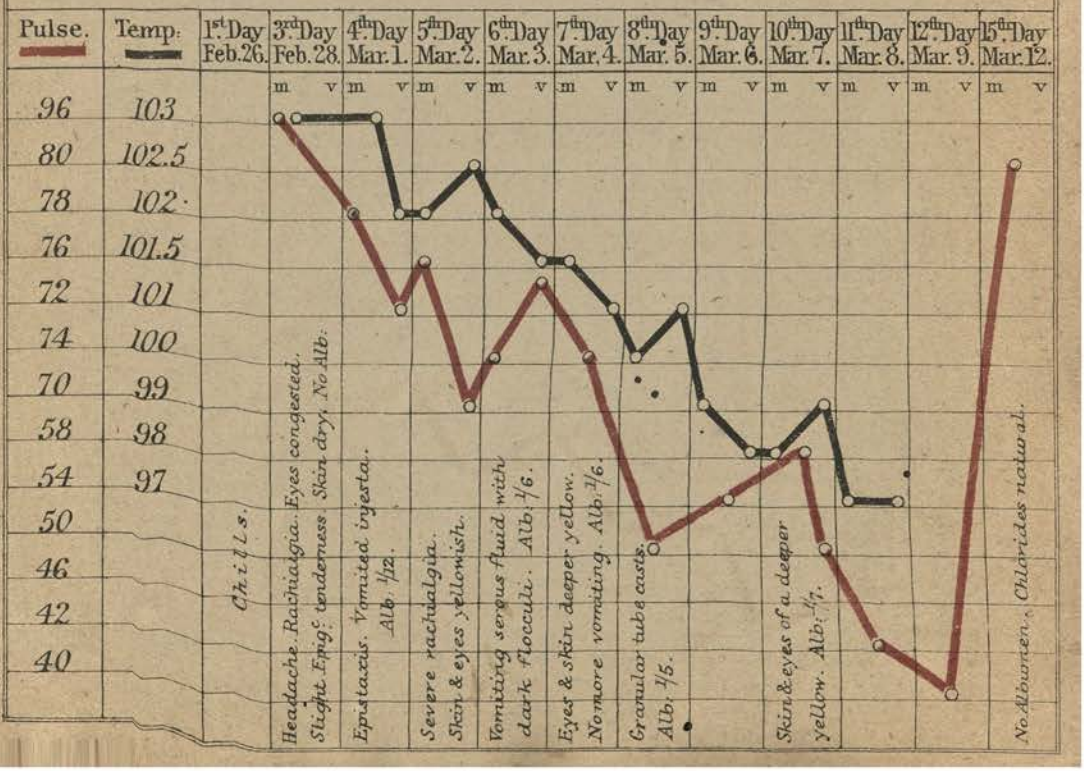
Nº 18.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



Nº 19.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



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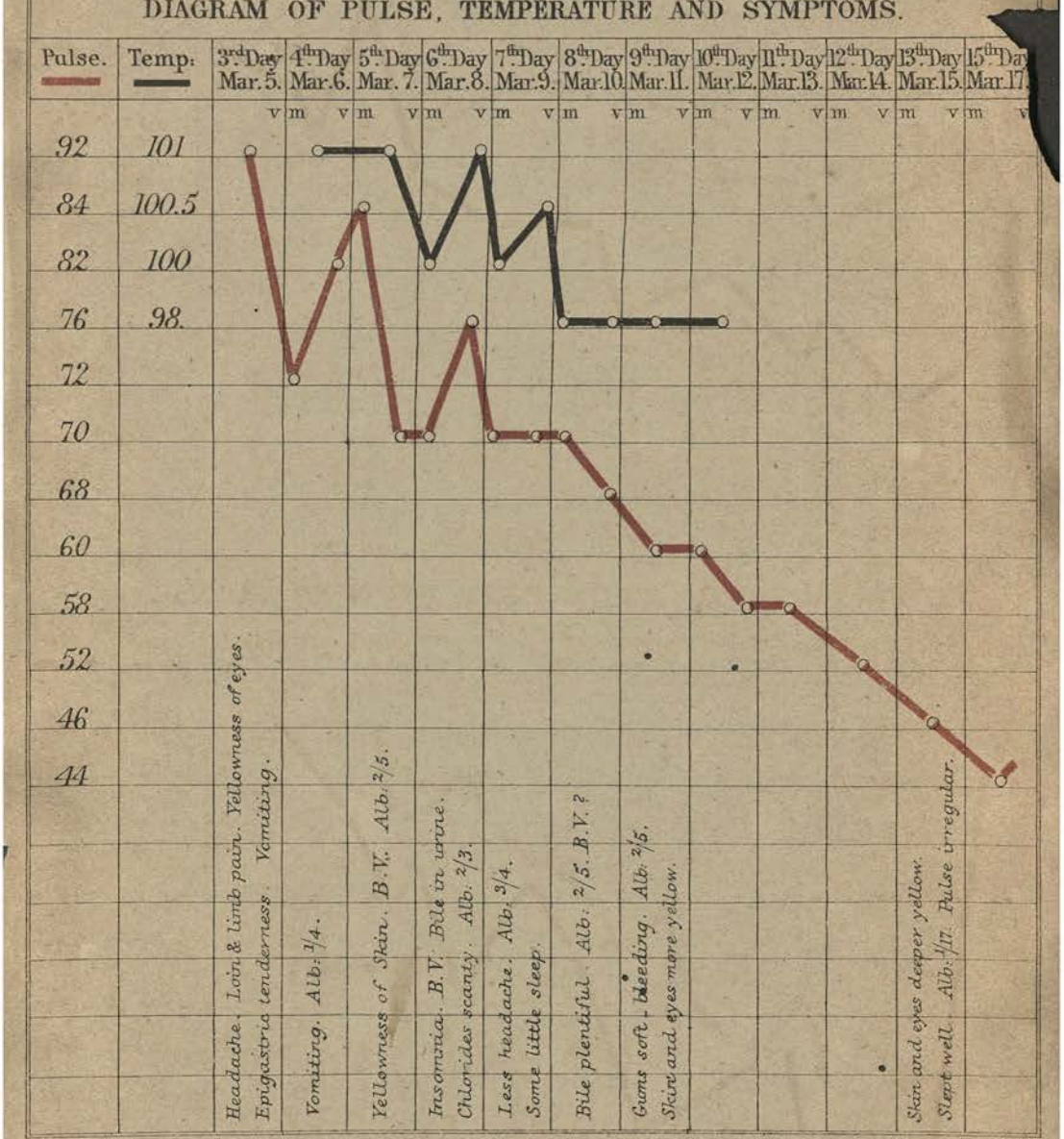

Nº 21.

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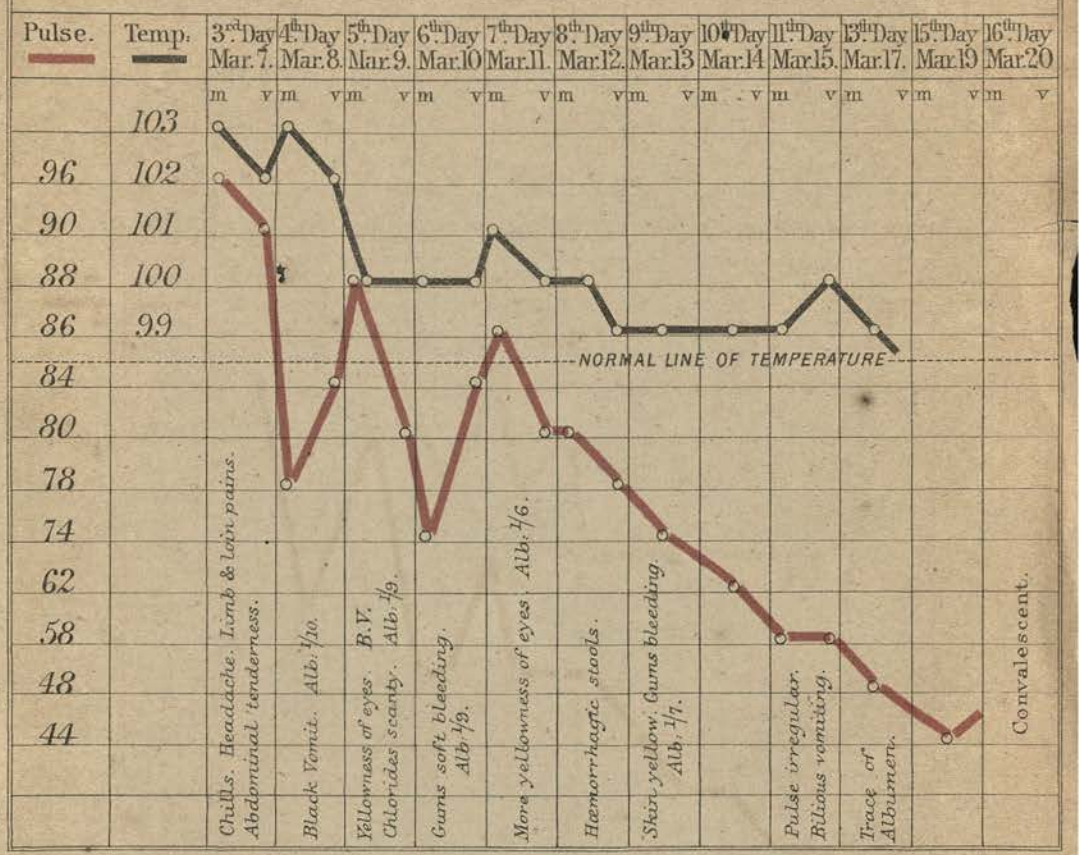

Nº 22.

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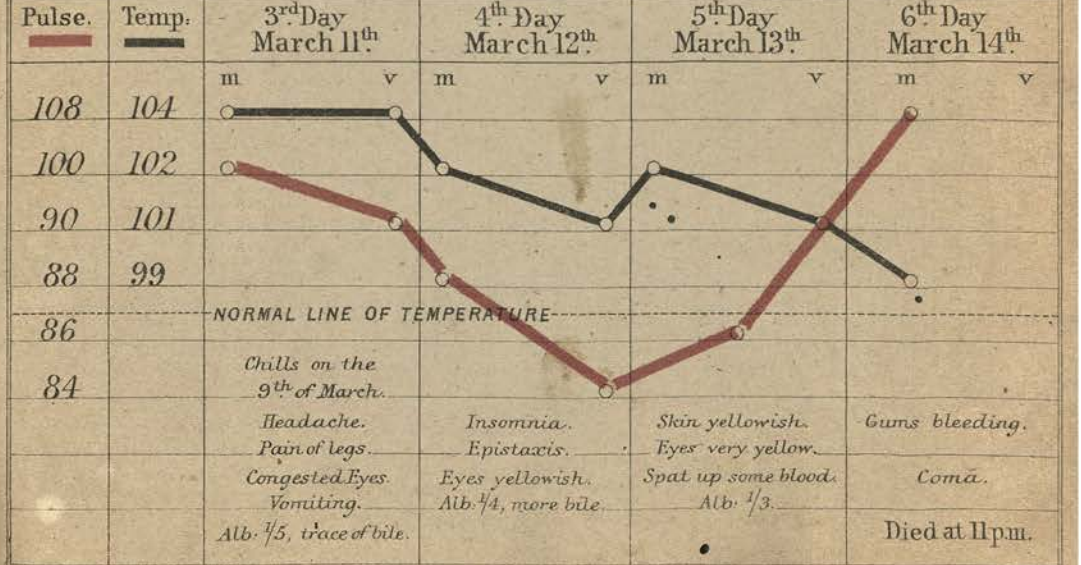

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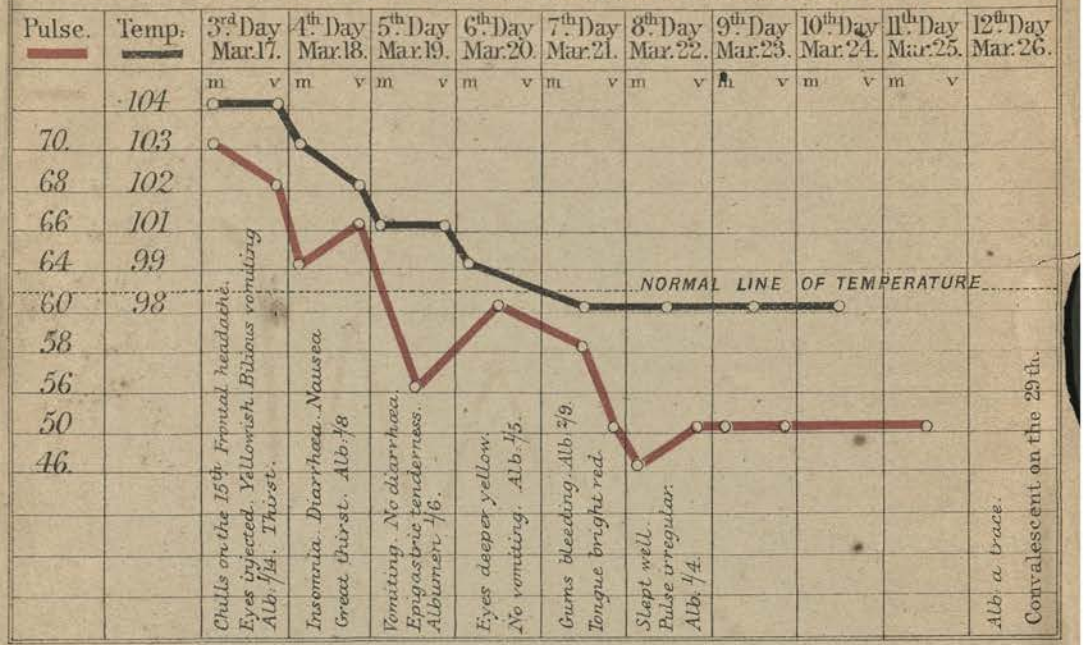

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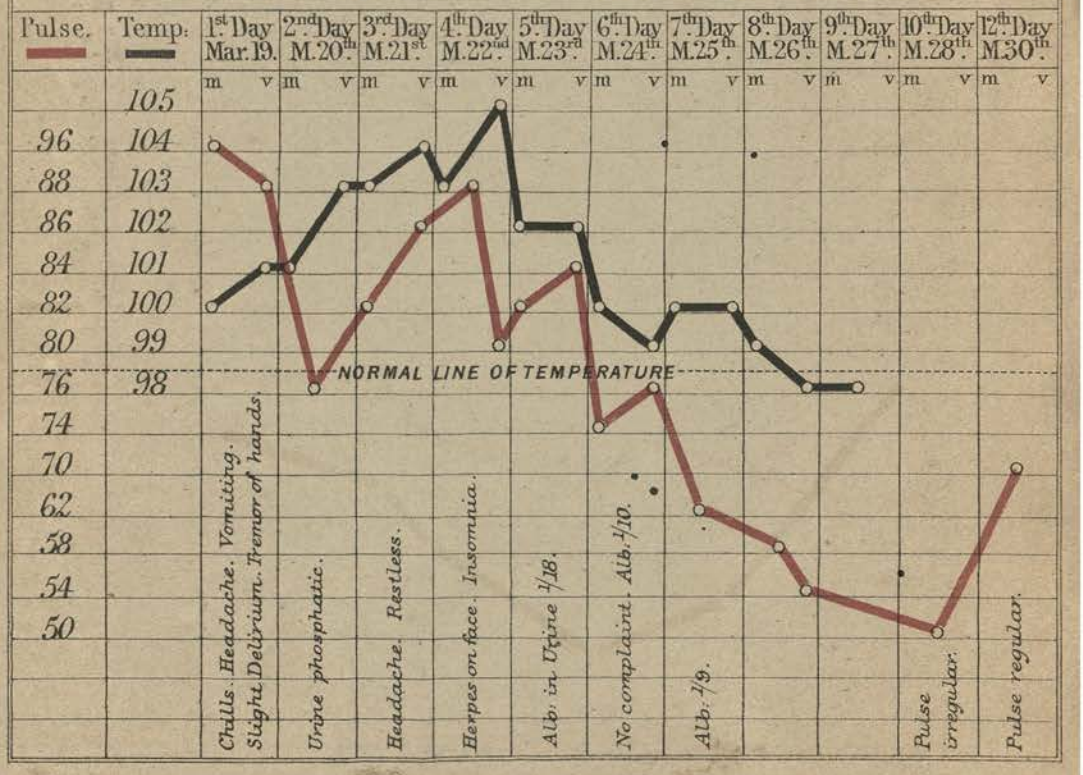

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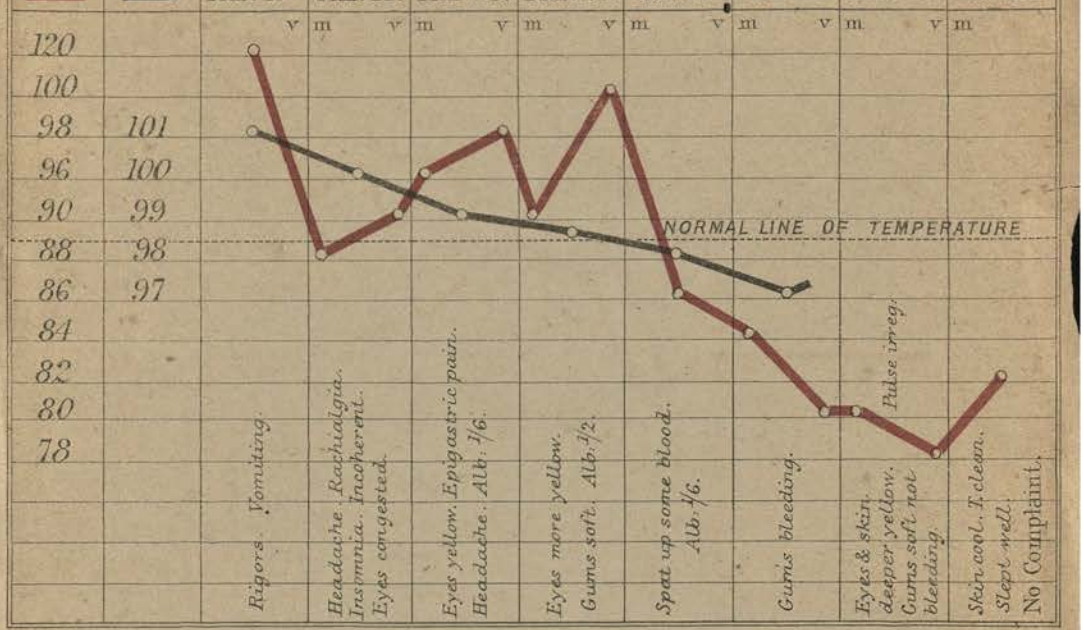

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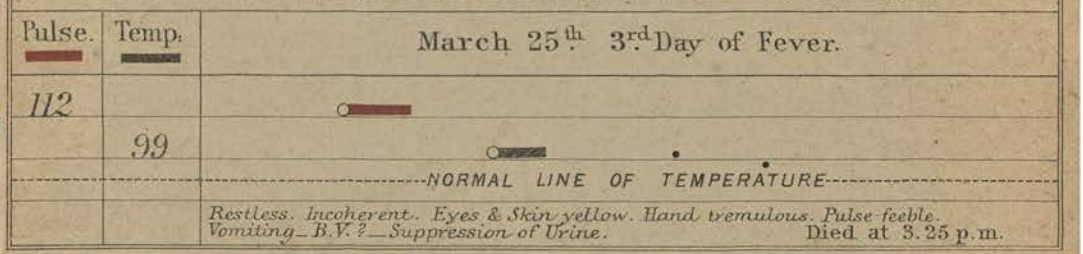

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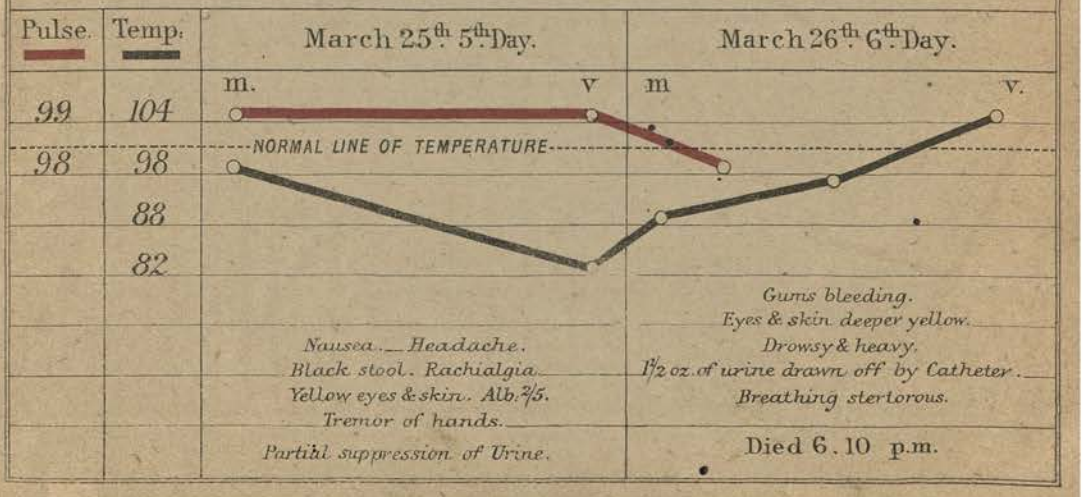

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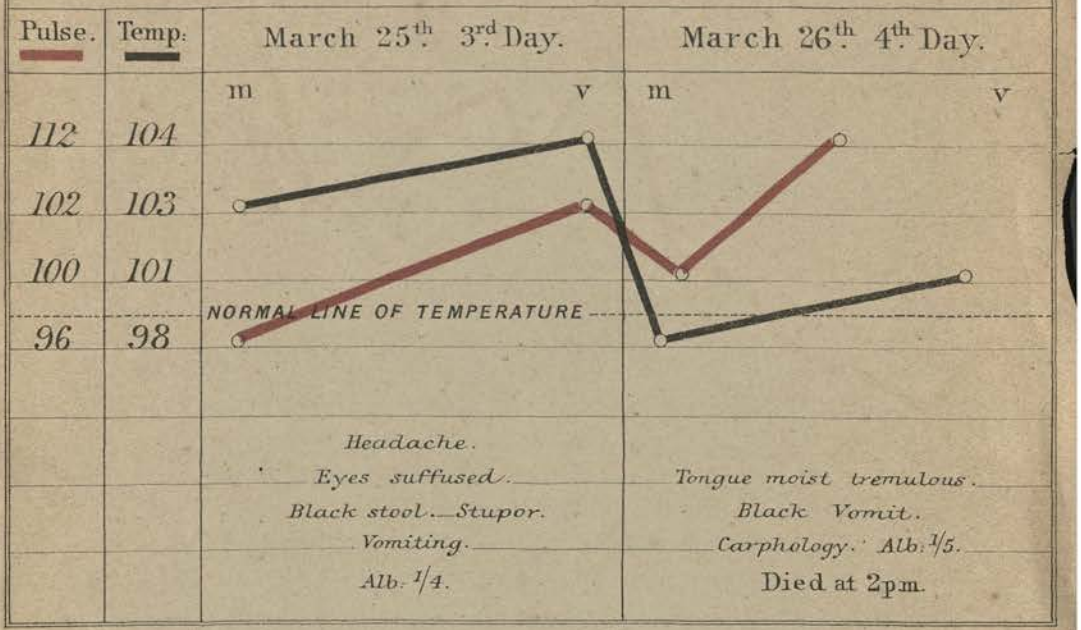

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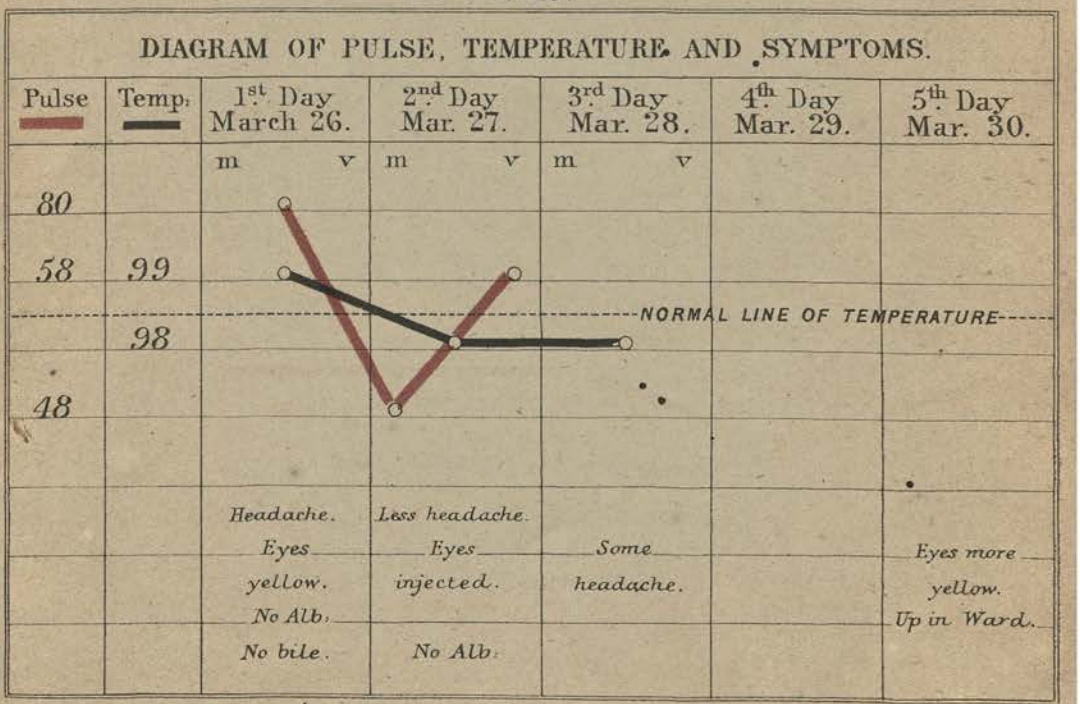

Nº 30.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.

Pulse.	Temp.	6th Day Mar. 26.	7th Day Mar. 27.	8th Day Mar. 28.	9th Day Mar. 29.	10th Day Mar. 30.	11th Day Mar. 31.	12th Day April 1st
		m v	m v	m v				
88								
60								
54								
		NORMAL LINE OF TEMPERATURE						
	98							
		Headache. Eyes injected. No Alb.	Eyes yellow. Insomnia. Hands tremulous.		No Alb	Eyes of a deeper yellow.		Up in Ward.

Nº 31.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.

Pulse.	Temp.	1st Day Mar. 26th	2nd Day Mar. 27th	4th Day Mar. 29th	5th Day Mar. 30th
			m v	m v	m v
62	98				
60					
56					
50					
		Headache. Eyes injected.	Eyes injected. Restless.	Pulse Irregular.	Pulse Regular.

Nº 35.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.

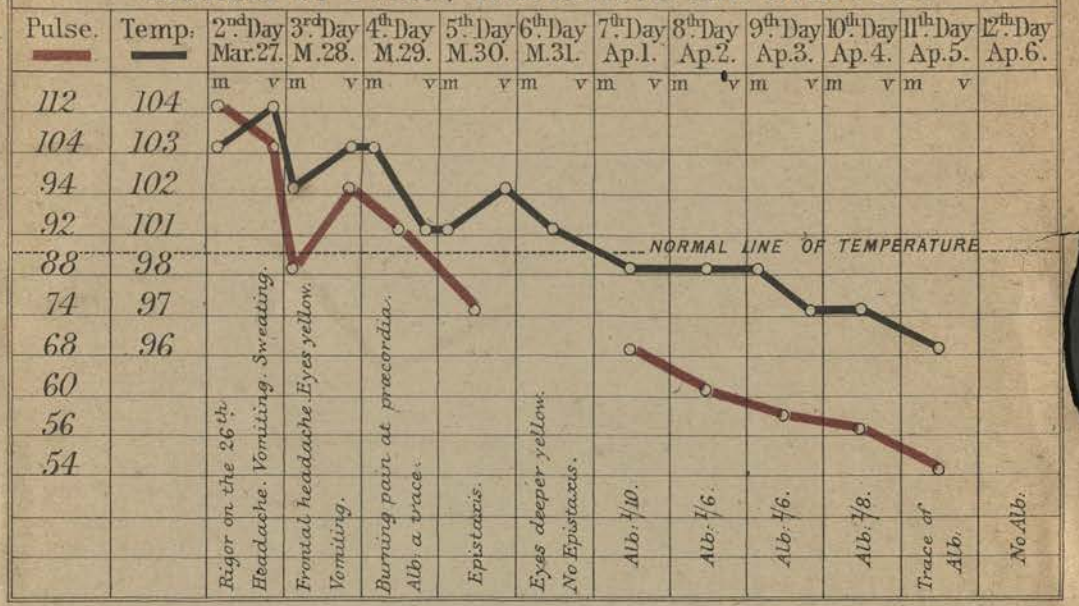

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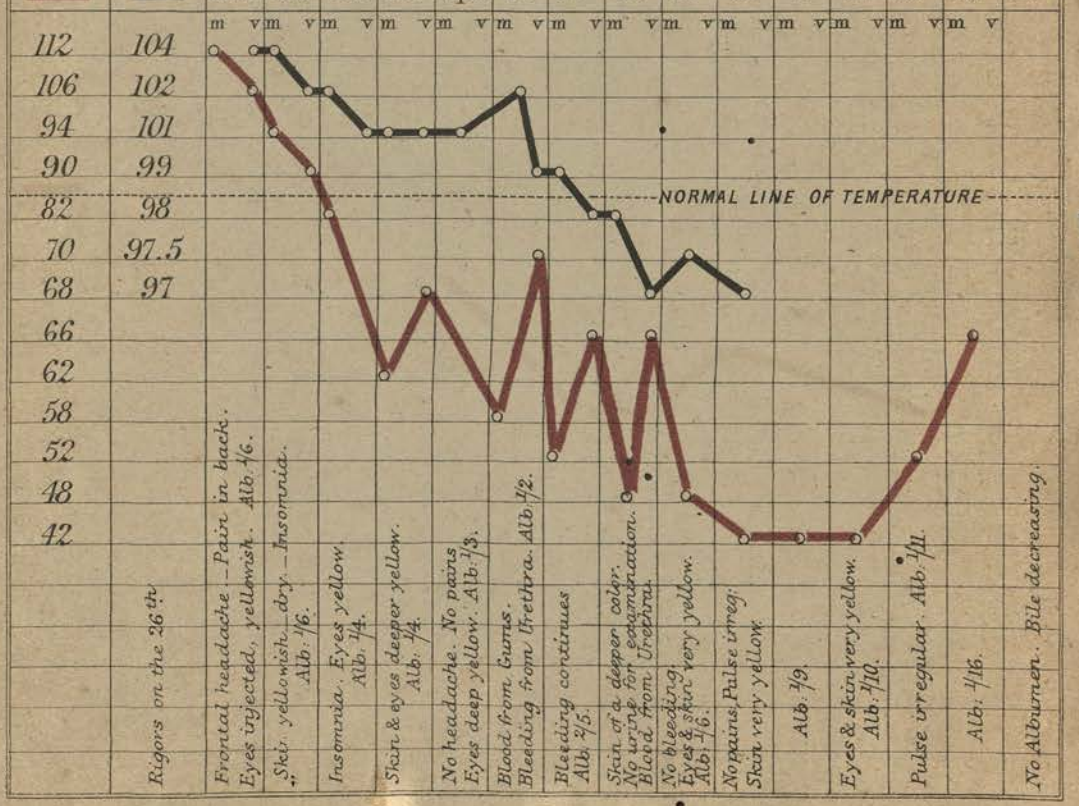
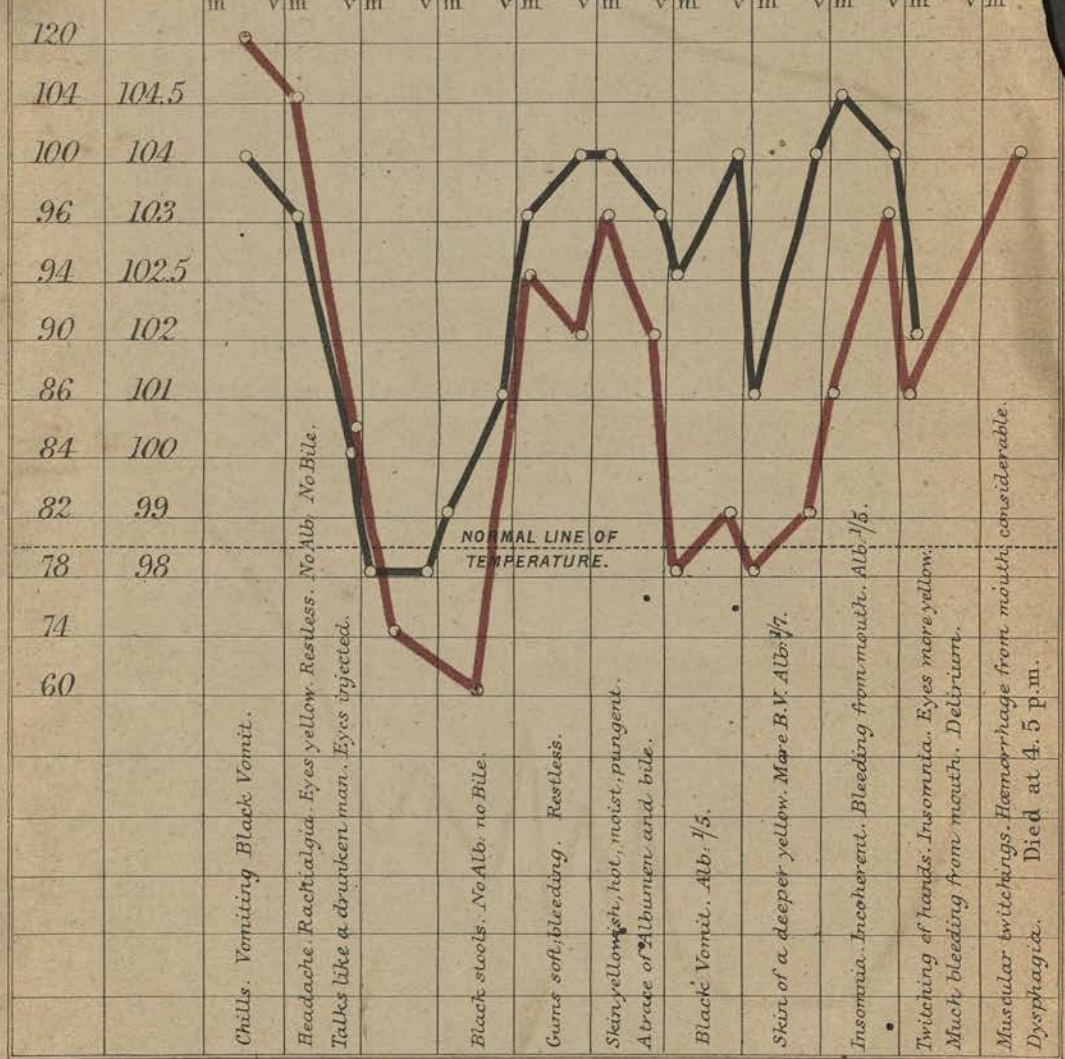
DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



Nº 37.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



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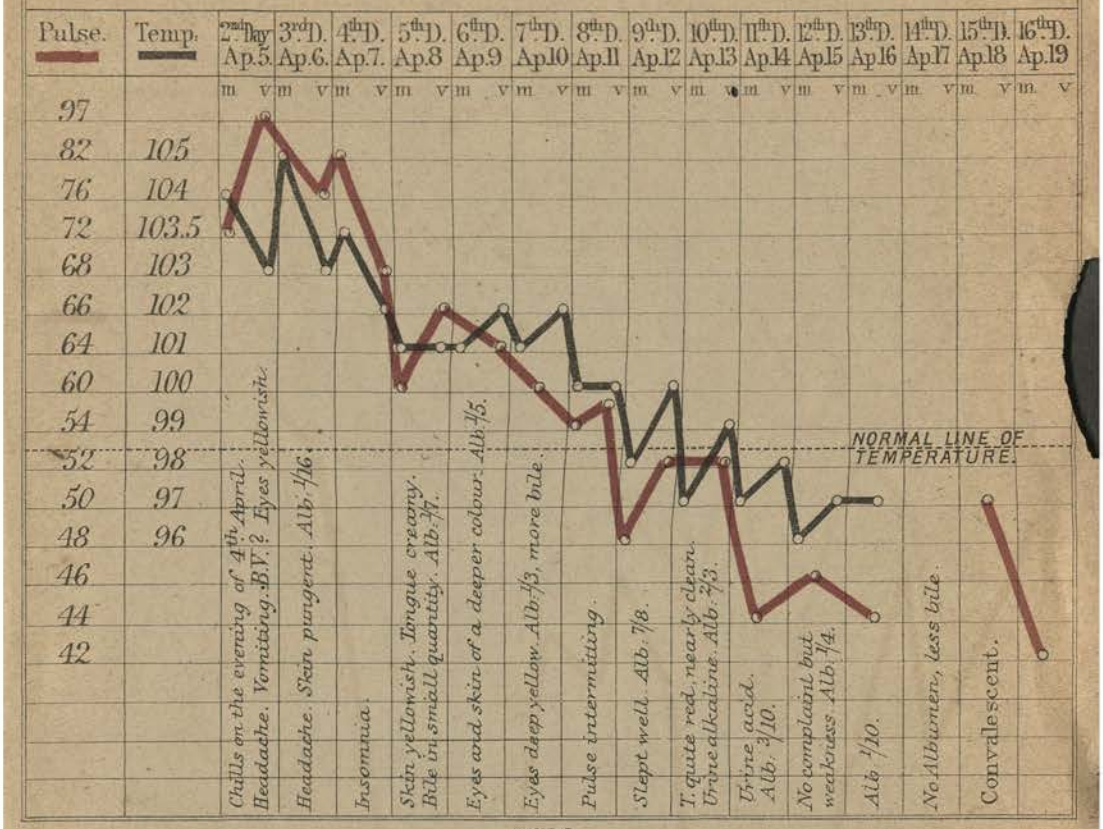
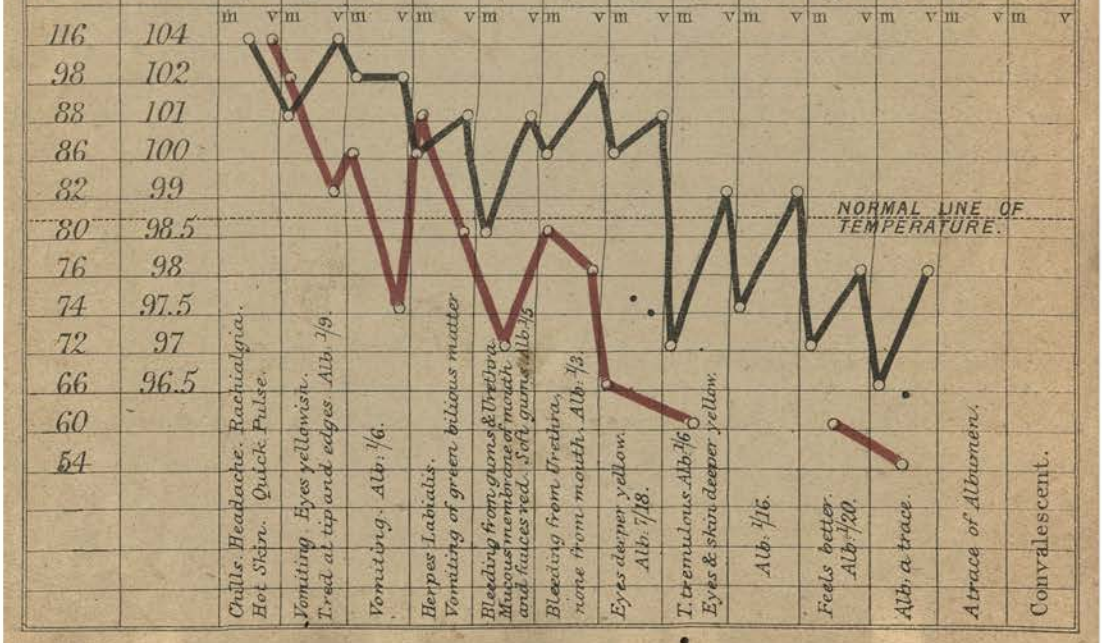


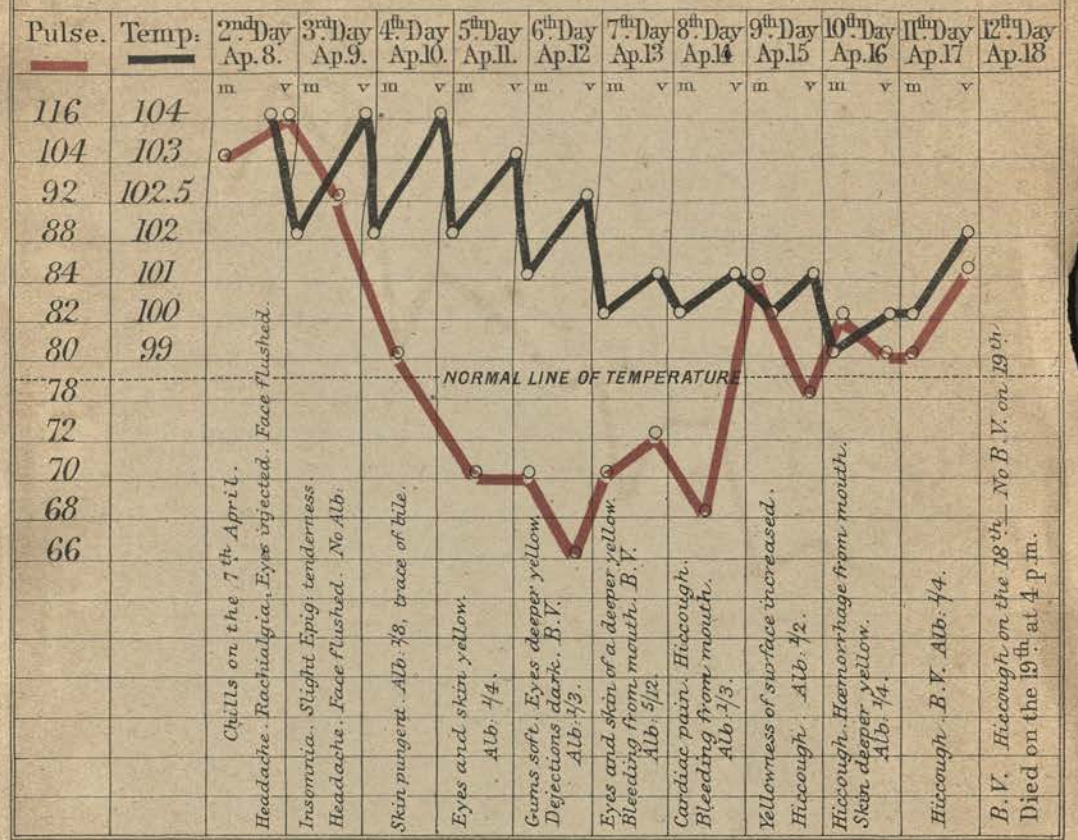
Nº39.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



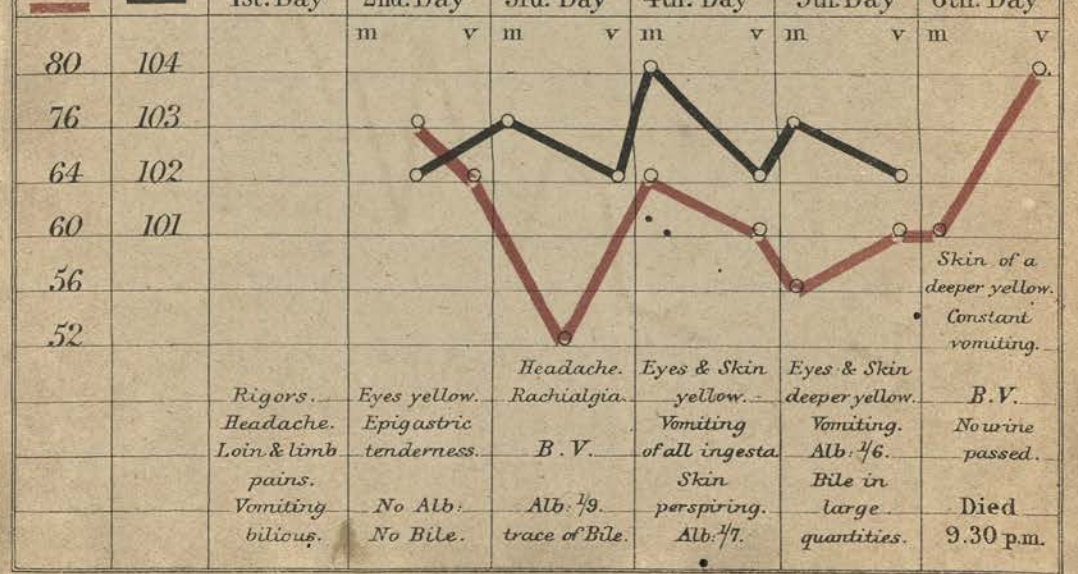
N°40.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.


Pulse.
Temp:
2nd. Day Ap. 8.
3rd. Day Ap. 9.
4th. Day Ap. 10.
5th. Day Ap. 11.
6th. Day Ap. 12
7th. Day Ap. 13
8th. Day Ap. 14
9th. Day Ap. 15
10th. Day Ap. 16
11th. Day Ap. 17
12th. Day Ap. 18
m v
116 104
104 103
92 102.5
88 102
84 101
82 100
80 99
78
72
70
68
66
NORMAL LINE OF TEMPERATURE
Chills on the 7th April. Headache. Rachialgia. Eyes injected. Face flushed.
Insomnia. Slight Epig: tenderness Headache. Face flushed. No Alb:
Skin purgent. Alb: 7/8, trace of bile.
Eyes and skin yellow. Alb: 1/4.
Gums soft. Eyes deeper yellow. Dejections dark. B.V. Alb: 1/3.
Eyes and skin of a deeper yellow. Bleeding from mouth. B.V. Alb: 5/12.
Cardiac pain. Hiccough. Bleeding from mouth. Alb: 1/3.
Yellowness of surface increased. Hiccough. Alb: 1/2.
Hiccough. Haemorrhage from mouth. Skin deeper yellow. Alb: 1/4.
Hiccough. B.V. Alb: 1/4.
B.V. Hiccough on the 18th. No B.V. on 19th. Died on the 19th. at 4 p.m.

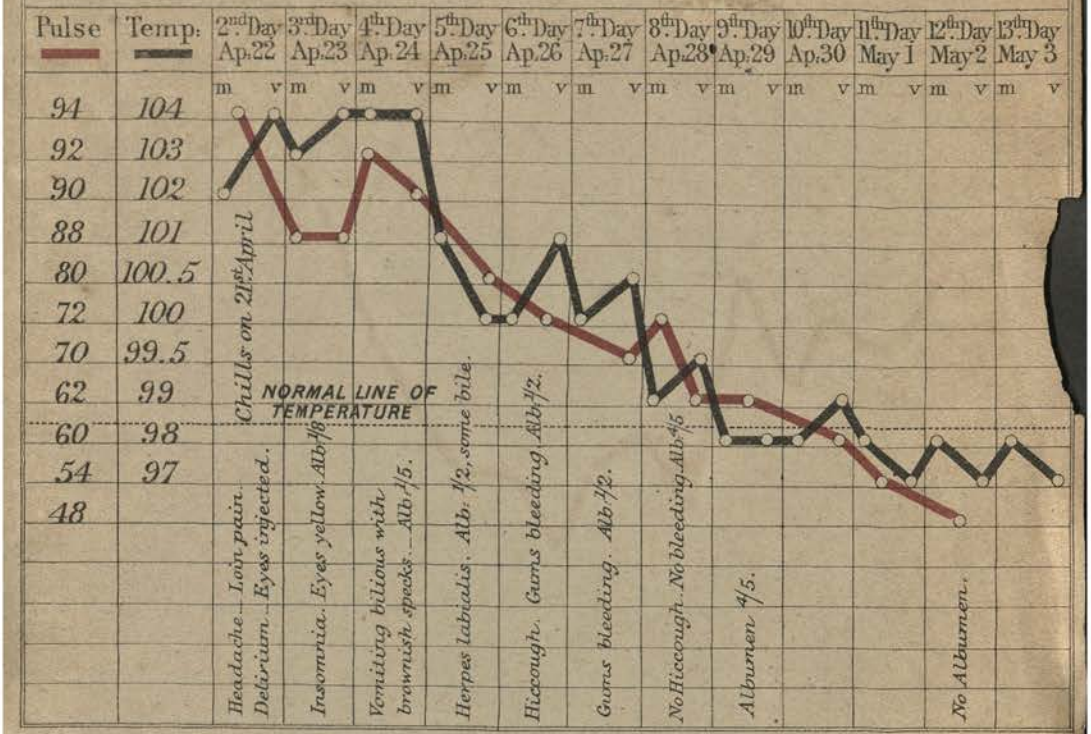
N°41.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.


Pulse.
Temp:
April 8th. 1st. Day
April 9th. 2nd. Day
April 10th. 3rd. Day
April 11th. 4th. Day
April 12th. 5th. Day
April 13th. 6th. Day
m v
80 104
76 103
64 102
60 101
56
52
Rigors. Headache. Loin & limb pains. Vomiting bilious.
Eyes yellow. Epigastric tenderness. No Alb: No Bile.
Headache. Rachialgia. B.V. Alb: 1/9. trace of Bile.
Eyes & Skin yellow. Vomiting of all ingesta Skin perspiring. Alb: 1/7.
Eyes & Skin deeper yellow. Vomiting. Alb: 1/6. Bile in large quantities.
Skin of a deeper yellow. Constant vomiting. B.V. No urine passed. Died 9.30 p.m.

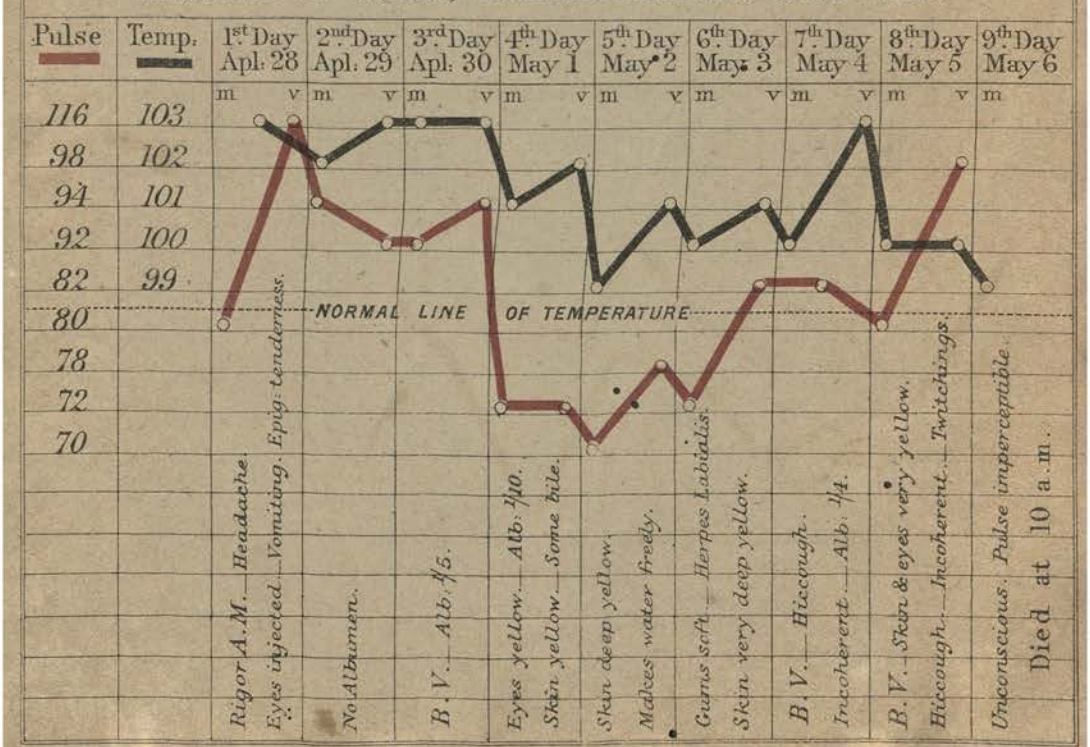
Nº 43.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



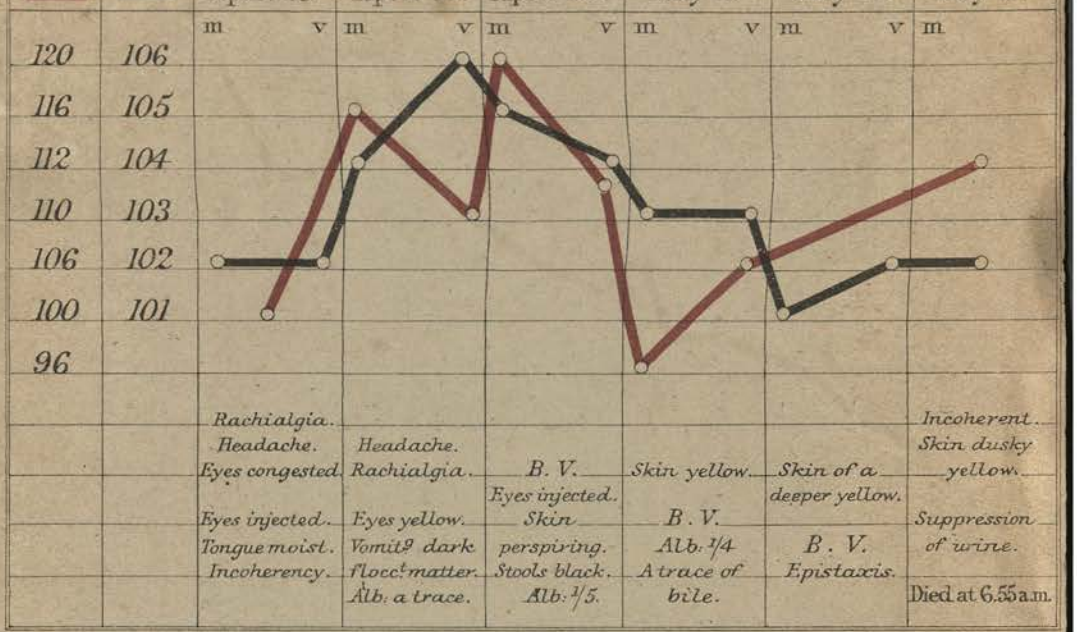
Nº 44.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



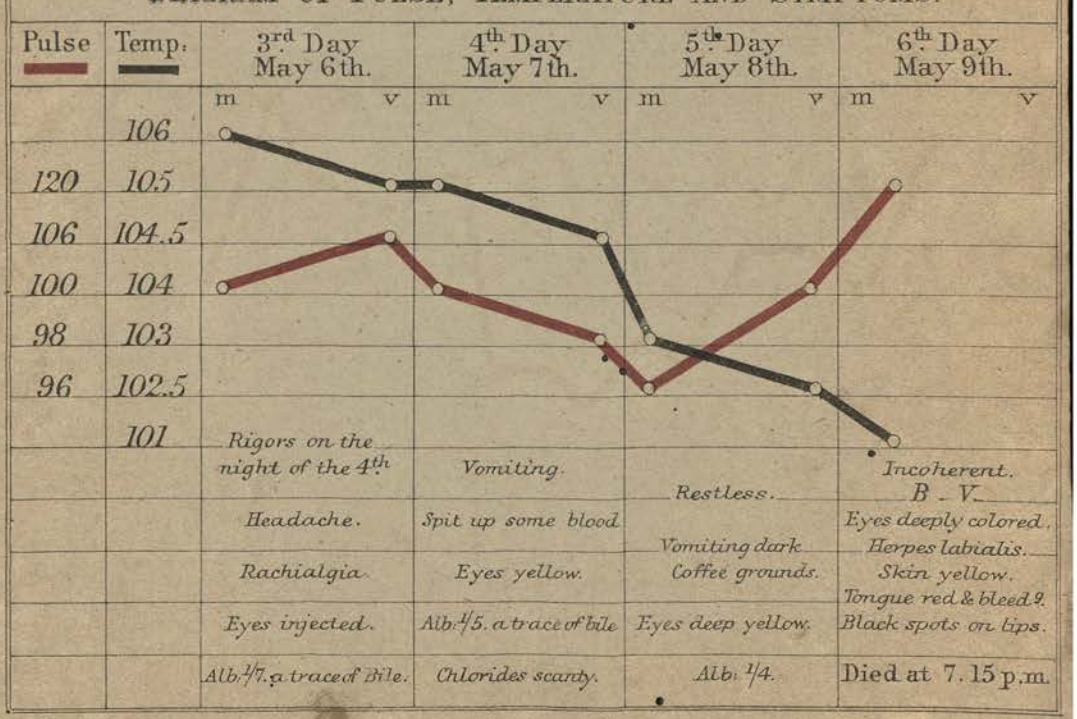
Nº 45.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.


Pulse
Temp.
1st Day April 28.
2nd Day April 29.
3rd Day April 30.
4th Day May 1.
5th Day May 2.
6th Day May 3.
m v
120 106
116 105
112 104
110 103
106 102
100 101
96
Rachialgia. Headache. Eyes congested. Eyes injected. Tongue moist. Incoherency.
Headache. Rachialgia. Eyes yellow. Vomitg dark flocct matter. Alb. a trace.
B. V. Eyes injected. Skin perspiring. Stools black. Alb. 1/5.
Skin yellow. B. V. Alb. 1/4 A trace of bile.
Skin of a deeper yellow. B. V. Epistaxis.
Incoherent. Skin dusky yellow. Suppression of urine. Died at 6.55 a.m.

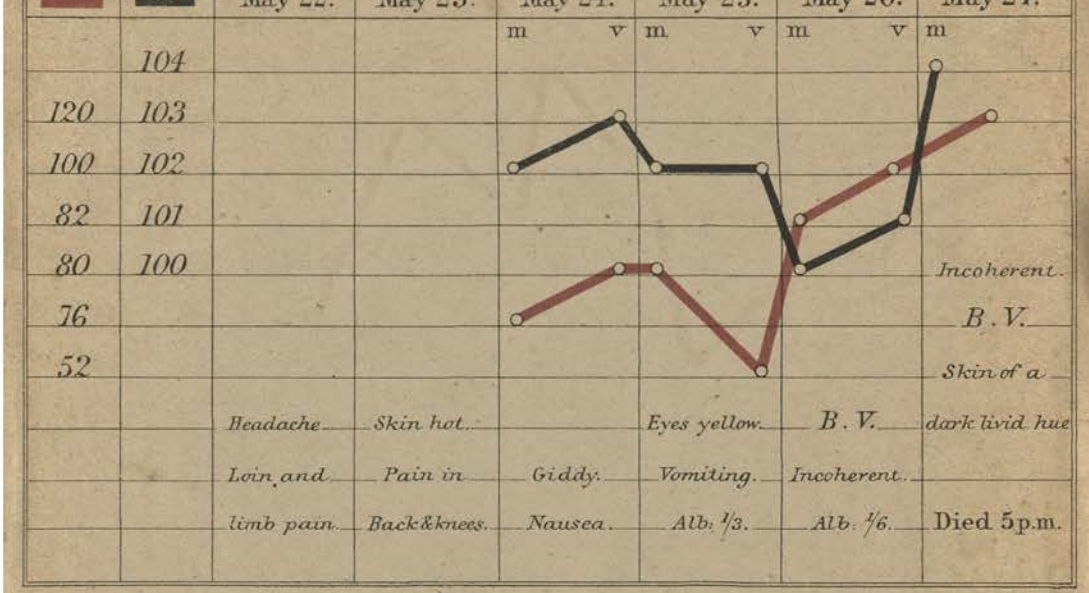
Nº 46.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.


Pulse
Temp.
3rd Day May 6th.
4th Day May 7th.
5th Day May 8th.
6th Day May 9th.
m v
106
120 105
106 104.5
100 104
98 103
96 102.5
101
Rigors on the night of the 4th. Headache. Rachialgia. Eyes injected. Alb. 1/7. a trace of Bile.
Vomiting. Spit up some blood. Eyes yellow. Alb. 1/5. a trace of bile. Chlorides scanty.
Restless. Vomiting dark Coffee grounds. Eyes deep yellow. Alb. 1/4.
Incoherent. B. V. Eyes deeply colored. Herpes labialis. Skin yellow. Tongue red & bleed.g Black spots on lips. Died at 7.15 p.m.

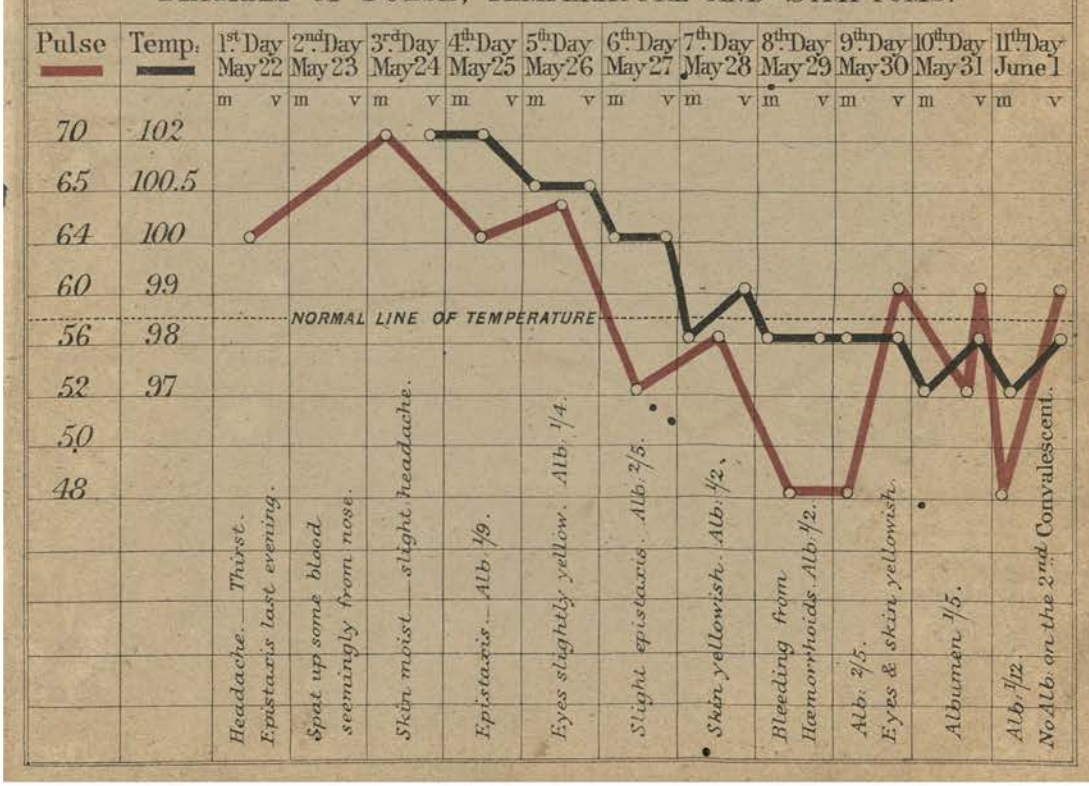
Nº 47.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



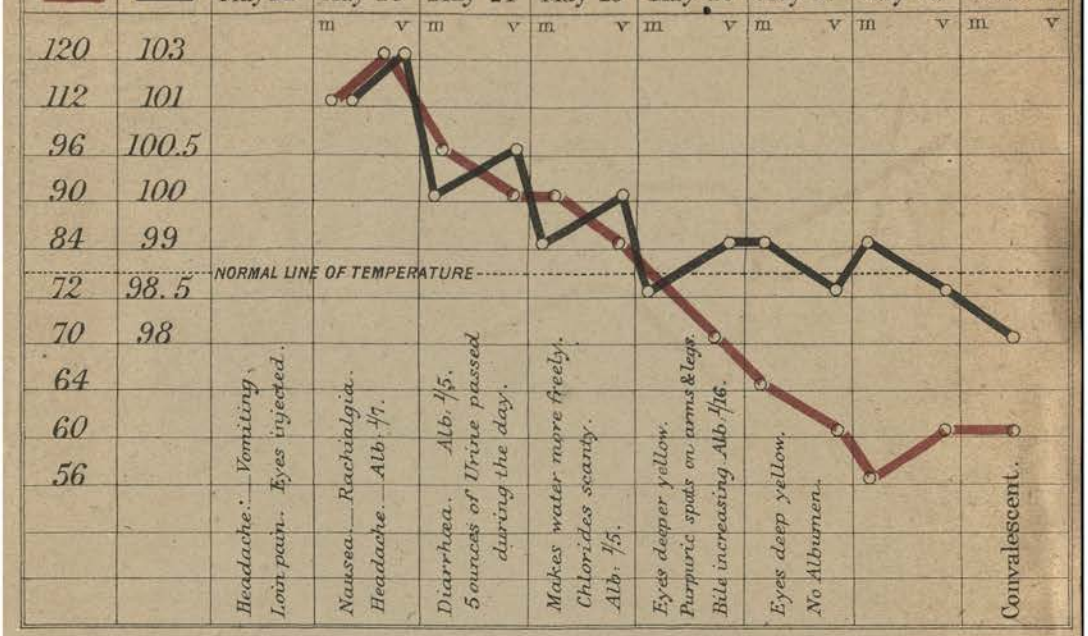
Nº 48.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



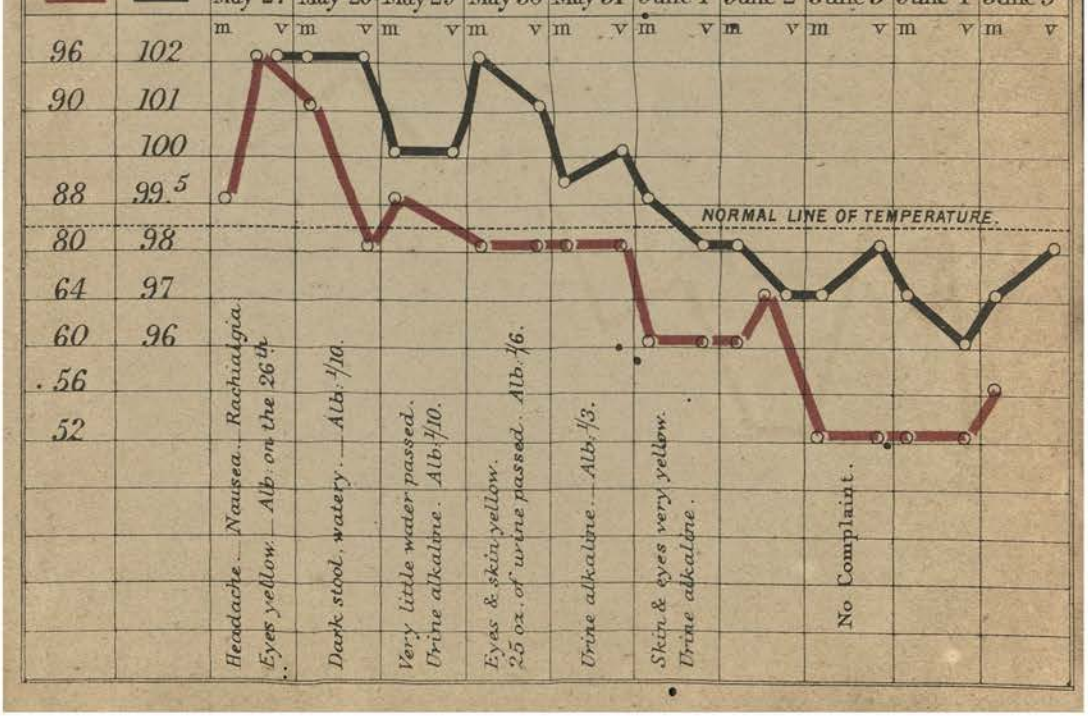
Nº 49.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



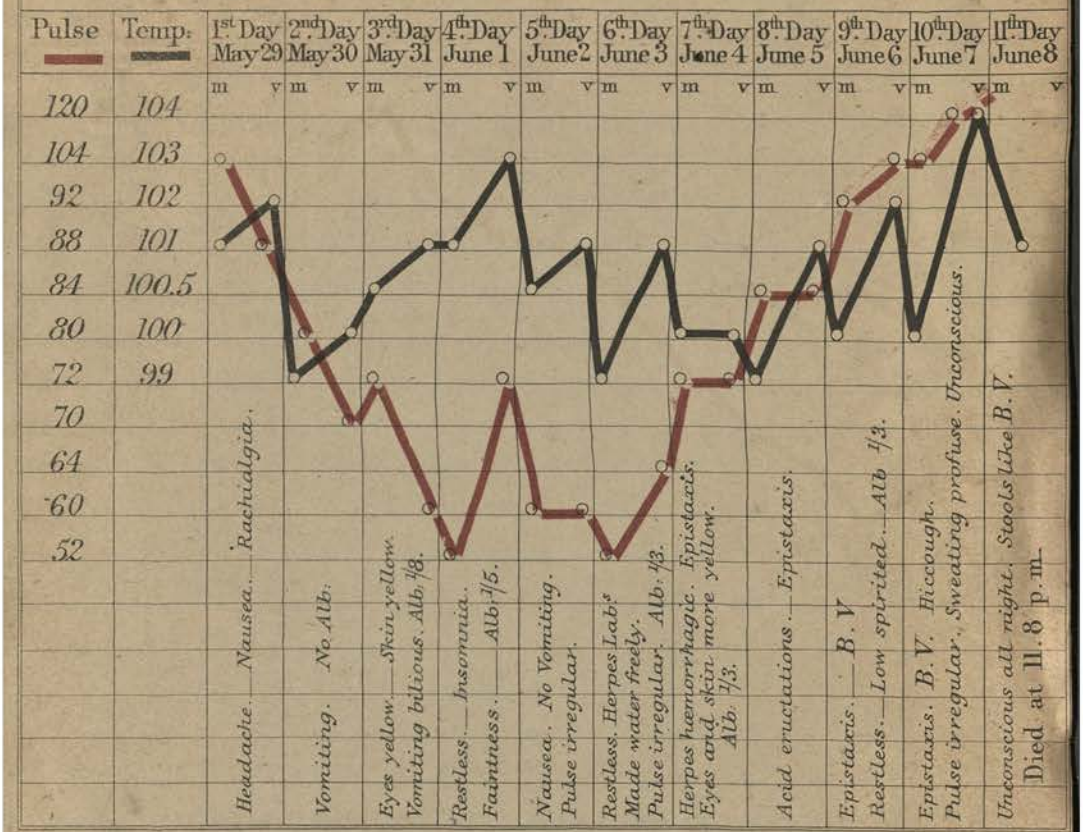
Nº 50.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS



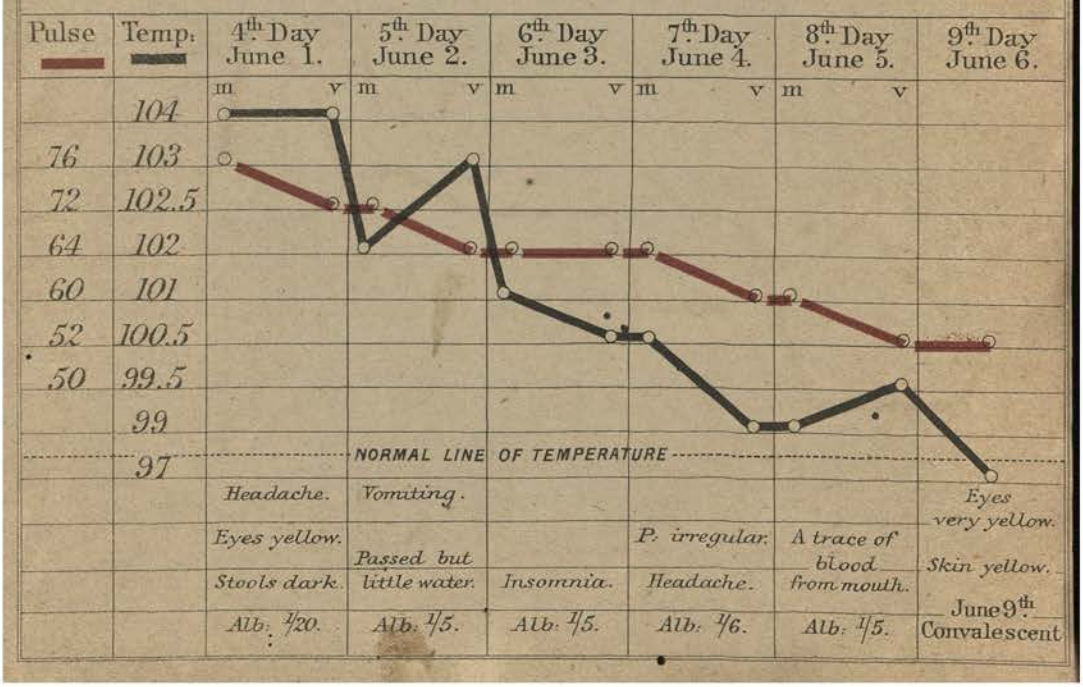
Nº 51.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



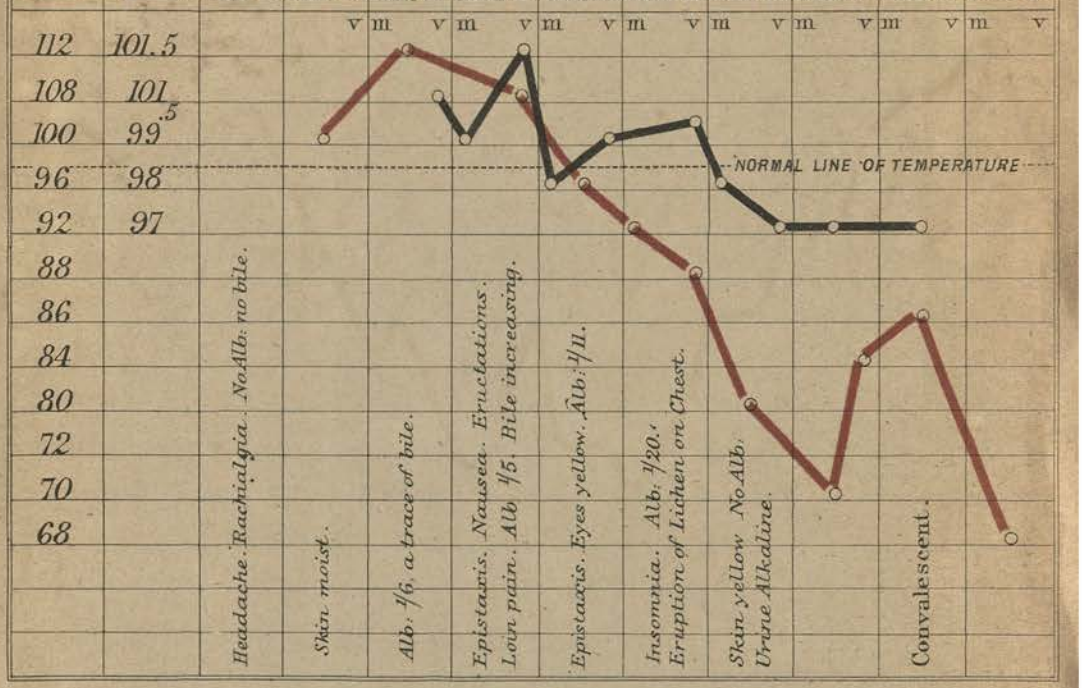
Nº 52.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



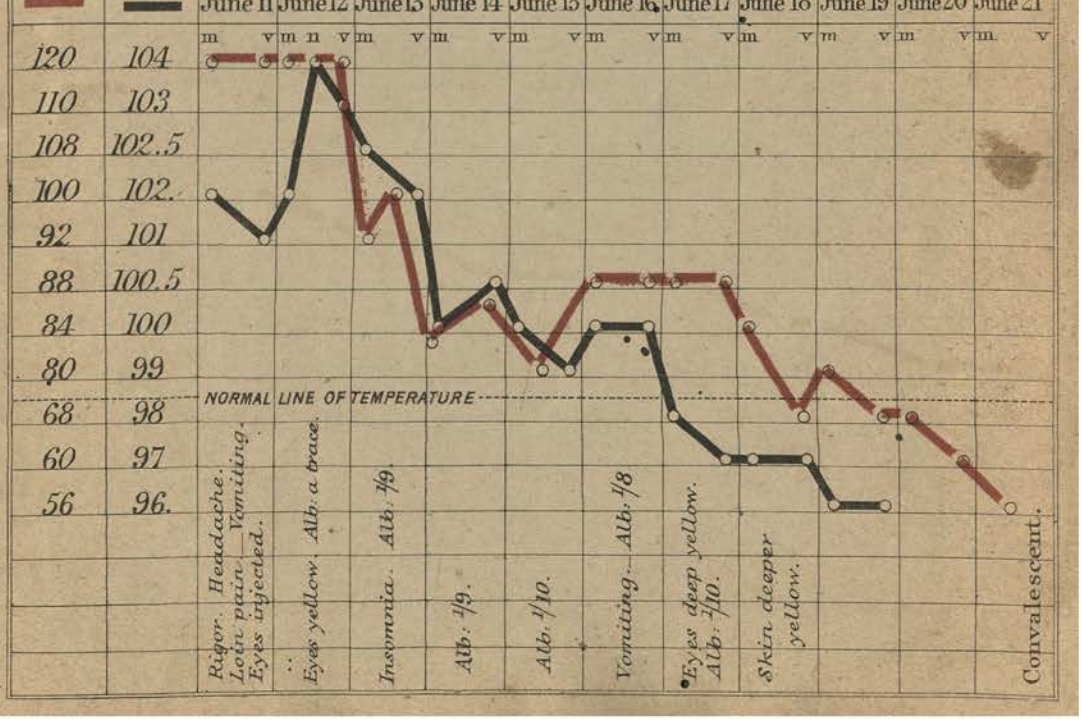
Nº 53.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



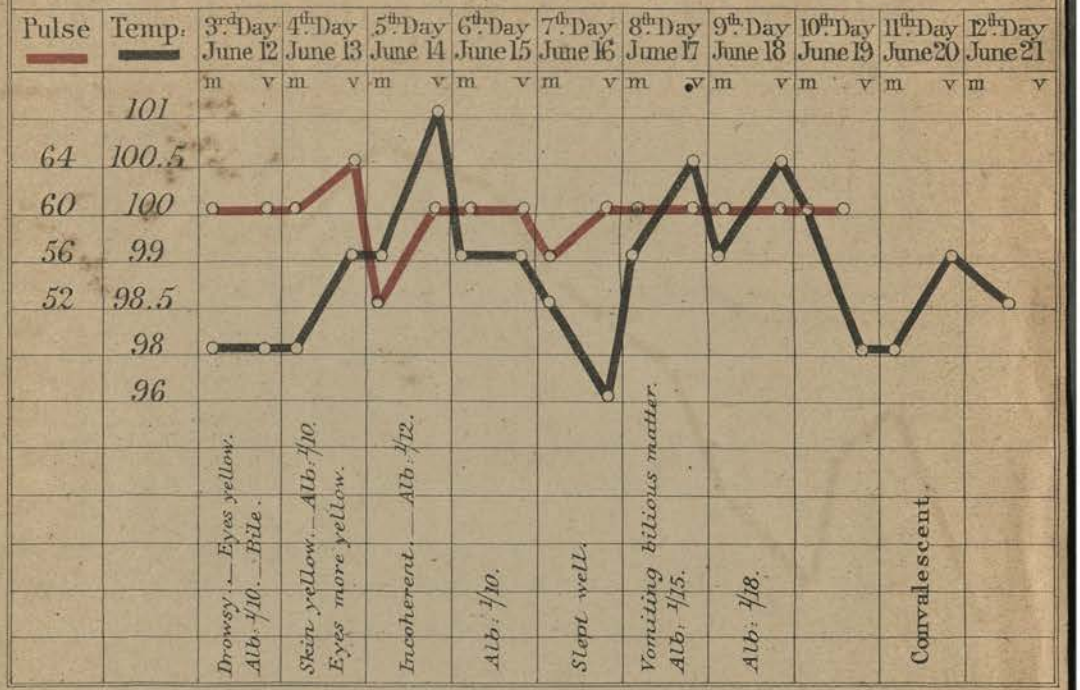
Nº 54.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



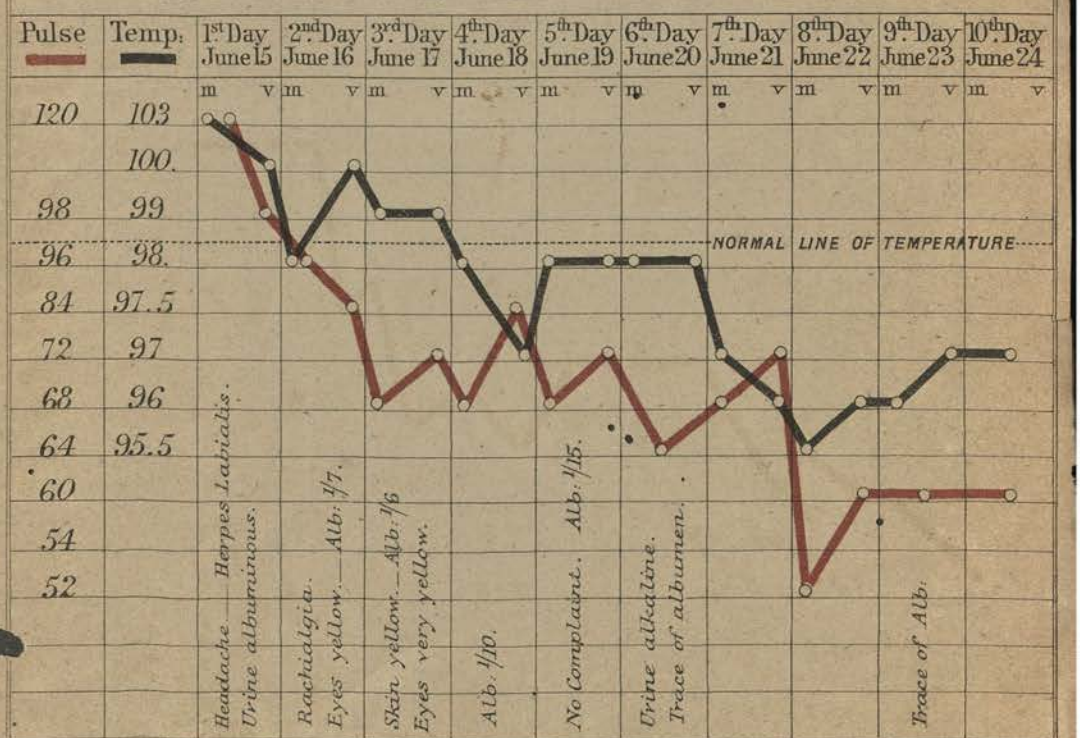
N°55.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



Nº 56.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



Nº 57.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.

Pulse	Temp.	3rd Day June 19	4th Day June 20	5th Day June 21	6th Day June 22	7th Day June 23	8th Day June 24	9th Day June 25	10th Day June 26	11th Day June 27	12th Day June 28	13th Day June 29
80		m v	m v	m v	m v	m v	m v	m v	m v	m v	m v	m
78	102											
76	100											
72	99											
68	98							NORMAL LINE OF TEMPERATURE				
66	97											
60		Head-ache.										
52		Rachi-algia.										
46												
		Eyes yellow.										
		Alb. 1/7.	Alb. 1/18.									No Alb.

Nº 58.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.

Pulse	Temp.	1st Day June 18.	2nd Day June 19.	3rd Day June 20.	4th Day June 21.
130		m v	m v	m v	m v
108	103.5				
104	99				
	98			NORMAL LINE OF TEMPERATURE	
				Skin yellow.	B.V. Incoherent. Sweats.
		Headache.		Partial suppression of Urine.	Hiccough. Jactitation.
		Loin pain.			Died 9.20 p.m.

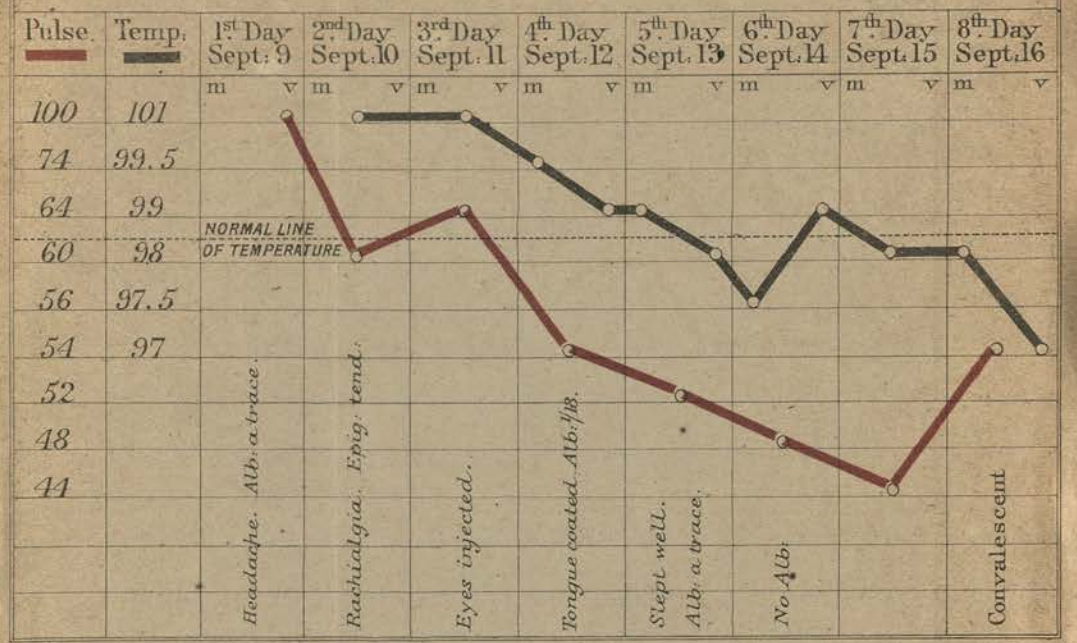
Nº 59.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.

Pulse	Temp.	3rd Day Sept. 7.	4th Day Sept. 8.	5th Day Sept. 9.	6th Day Sept. 10.	7th Day Sept. 11.	8th Day Sept. 12.	9th Day Sept. 13.
100	103	m v	m v	m v	m v	m v	m v	m v
96	101							
88	100.5							
80	100							
70	99							
66	98.5	NORMAL LINE OF TEMPERATURE						
64	98	Headache.						
60	97	Hot dry Skin.						
			Eyes yellow.	Eyes deep yellow.				
		Flushed Countenance. Rachialgia.	Alb. 1/16.	Skin yellow.	No Alb.			
		Nausea. Eyes injected. Alb. 1/16.	Chlorides less in quantity.	Chlorides absent. Alb. a trace.	Chlorides reappearing			

Nº 60.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



Nº 61.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.

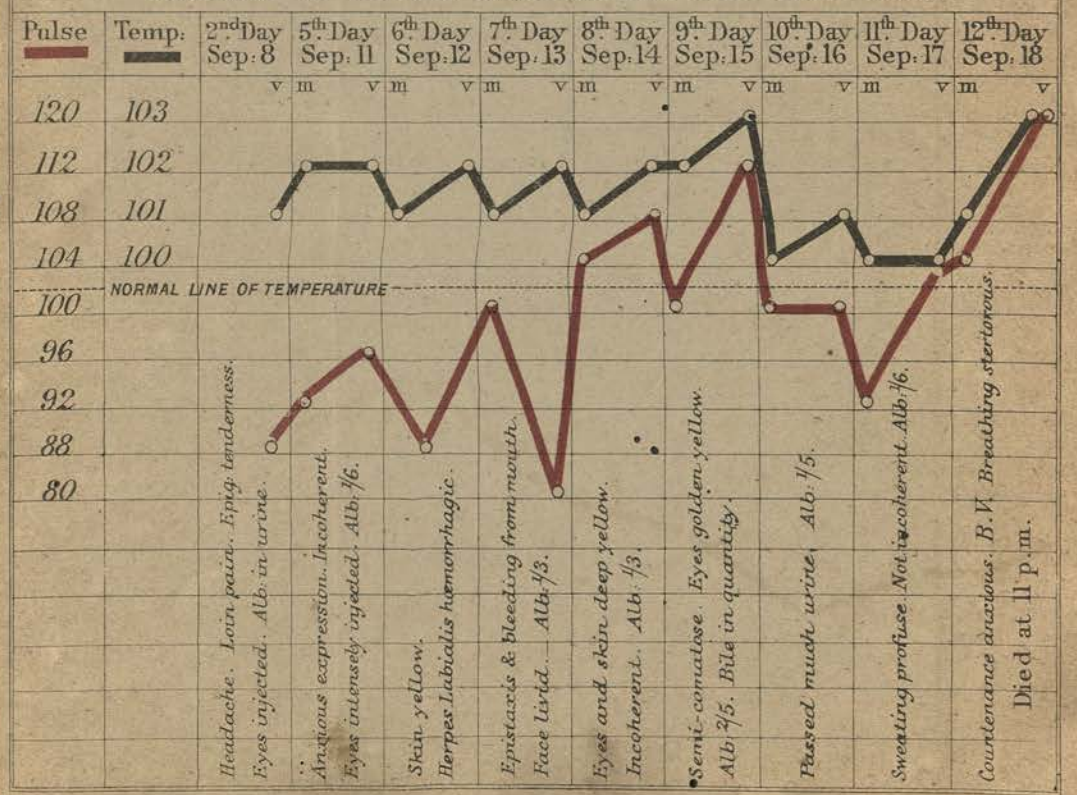
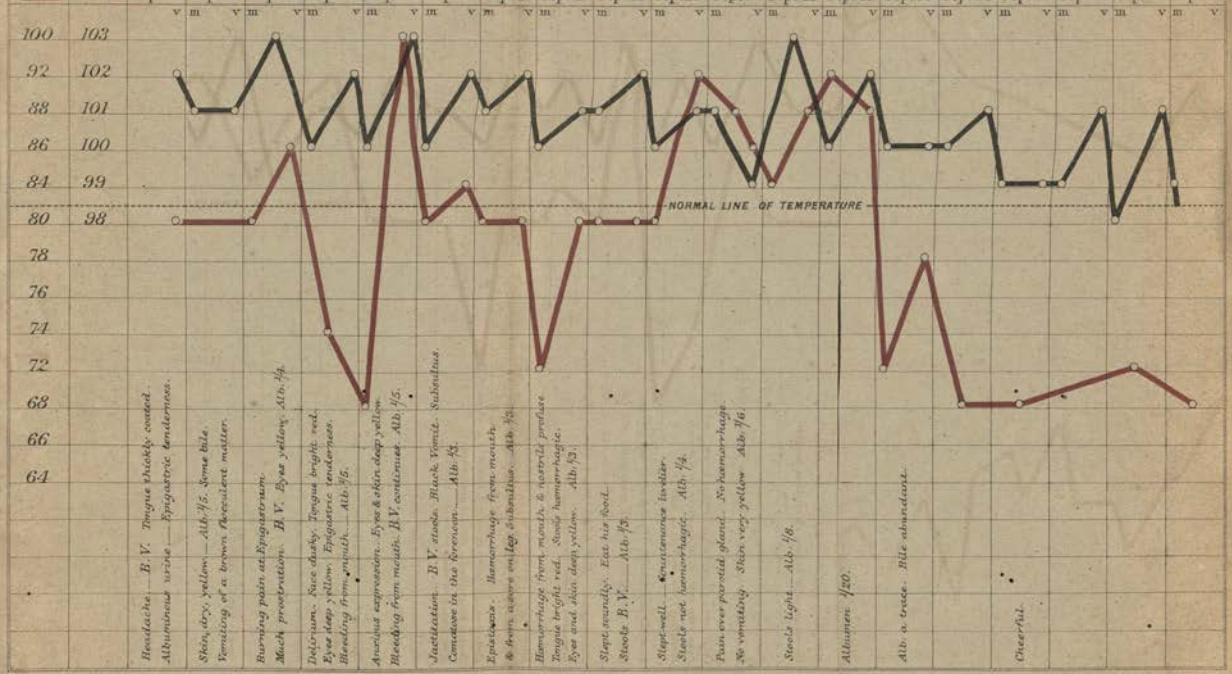
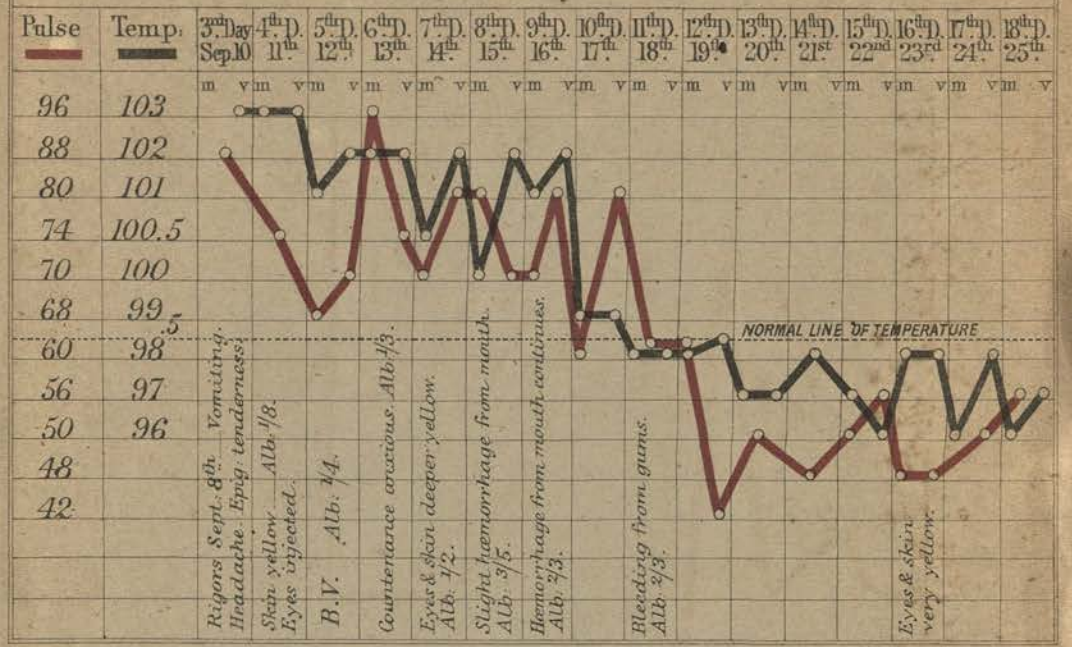


DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.


Pulse
Temp.
3rd Day Sept. 10
4th Day Sept. 11
5th Day Sept. 12
6th Day Sept. 13
7th Day Sept. 14
8th Day Sept. 15
9th Day Sept. 16
10th Day Sept. 17
11th Day Sept. 18
12th Day Sept. 19
13th Day Sept. 20
14th Day Sept. 21
15th Day Sept. 22
16th Day Sept. 23
17th Day Sept. 24
18th Day Sept. 25
19th Day Sept. 26
20th Day Sept. 27
21st Day Sept. 28
100 103
92 102
88 101
86 100
84 99
80 98
78
76
74
72
68
66
64
NORMAL LINE OF TEMPERATURE
Headache. B.V. Tongue thickly coated. Albuminous urine. Epigastric tenderness.
Skin, dry, yellow. Alb. 1/5. Sems bile. Vomiting of a brown flocculent matter.
Burning pain at Epigastrium. Much prostration. B.V. Eyes yellow. Alb. 1/4.
Delirium. Face dusky. Tongue bright red. Eyes deep yellow. Epigastric tenderness. Bleeding from mouth. Alb. 1/5.
Anxious expression. Eyes & skin deep yellow. Bleeding from mouth. B.V. continues. Alb. 1/5.
Jactitation. B.V. vomit. Black. Vomit. Subsultus. Comatose in the forenoon. Alb. 1/3.
Epistaxis. Hæmorrhage from mouth & from ulcers on legs. Subsultus. Alb. 1/3.
Hæmorrhage from mouth & parotid profuse. Tongue bright red. Stools hæmorrhagic. Eyes and skin deep yellow. Alb. 1/3.
Slept soundly. Eats his food. Stools B.V. Alb. 1/5.
Slept well. Consciousness unclear. Stools not hæmorrhagic. Alb. 1/4.
Pain over parotid gland. No hæmorrhage. No vomiting. Skin very yellow. Alb. 1/6.
Stools light. Alb. 1/8.
Albumen 1/20.
Alb. a trace. Bile abundant.
Cheerful.

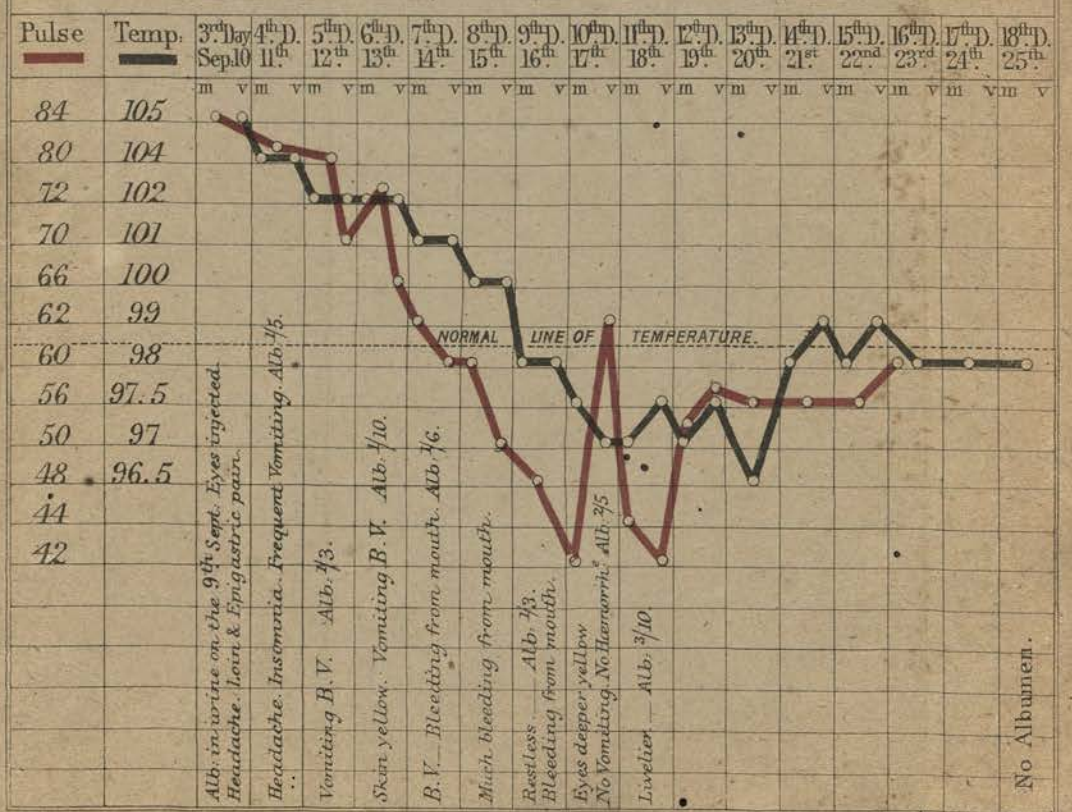
Nº 63.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



Nº 64.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



Nº 65.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.

Pulse	Temp:	1st Day Oct: 7.	6th Day Oct: 12	7th Day Oct: 13	8th Day Oct: 14	9th Day Oct: 15	10th Day Oct: 16	11th Day Oct: 17	12th Day Oct: 18	13th Day Oct: 19	14th Day Oct: 20
		m v	m v	m v	m v	m v	m v	m v	m v	m v	m v
	105										
112	104										
101	103										
92	102										
88	101										
80	100										
72	99										
70	98										
64											
		Rigors. Nausea. Delirium. Albumen in urine.	Headache. Deafness. Rachialgia. Eyes yellow. Alb: 1/25.	Epigastric tenderness.		No Albumen.					

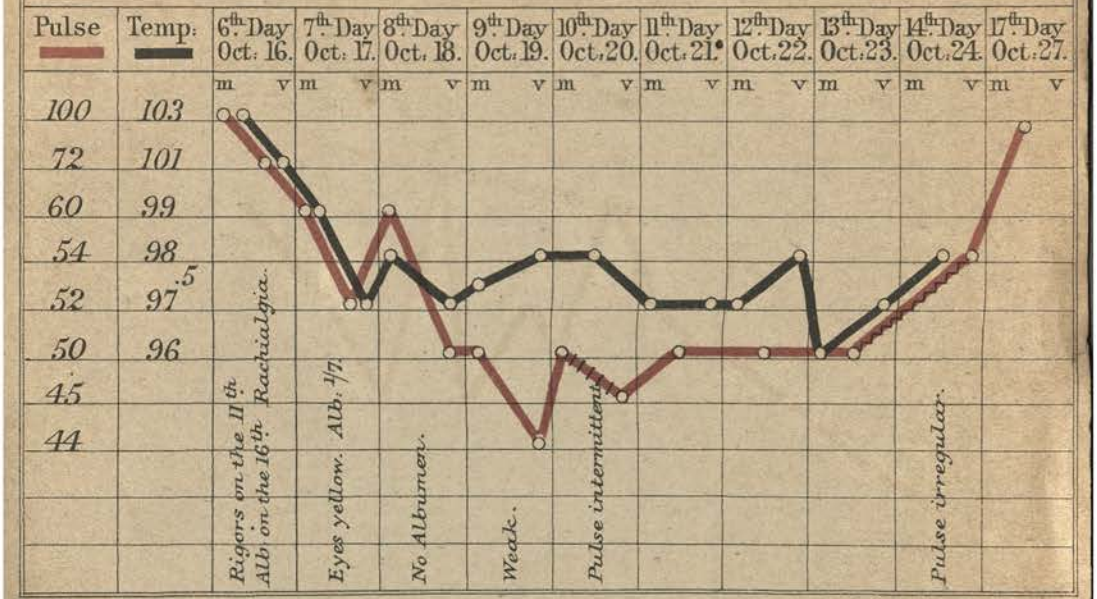
Nº 66.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.

Pulse	Temp:	1st Day Oct: 10.	2nd Day Oct: 11.	3rd Day Oct: 12.	4th Day Oct: 13.	5th Day Oct: 14.
			m v	m v	m v	m
120	104.5					
110	103					
100	102					
92						
				Eyes yellow.		
		Chills.	Sup: orb: headache.	Skin yellow.	Eyes & skin yellow.	
		Vomiting.		Epigastric tenderness.	Hiccough.	Delirium 1 a.m.
			Restless.	Acid eructation.	B. V.	
				Suppression of urine.	Stools dark.	Died at 2.15 a.m.

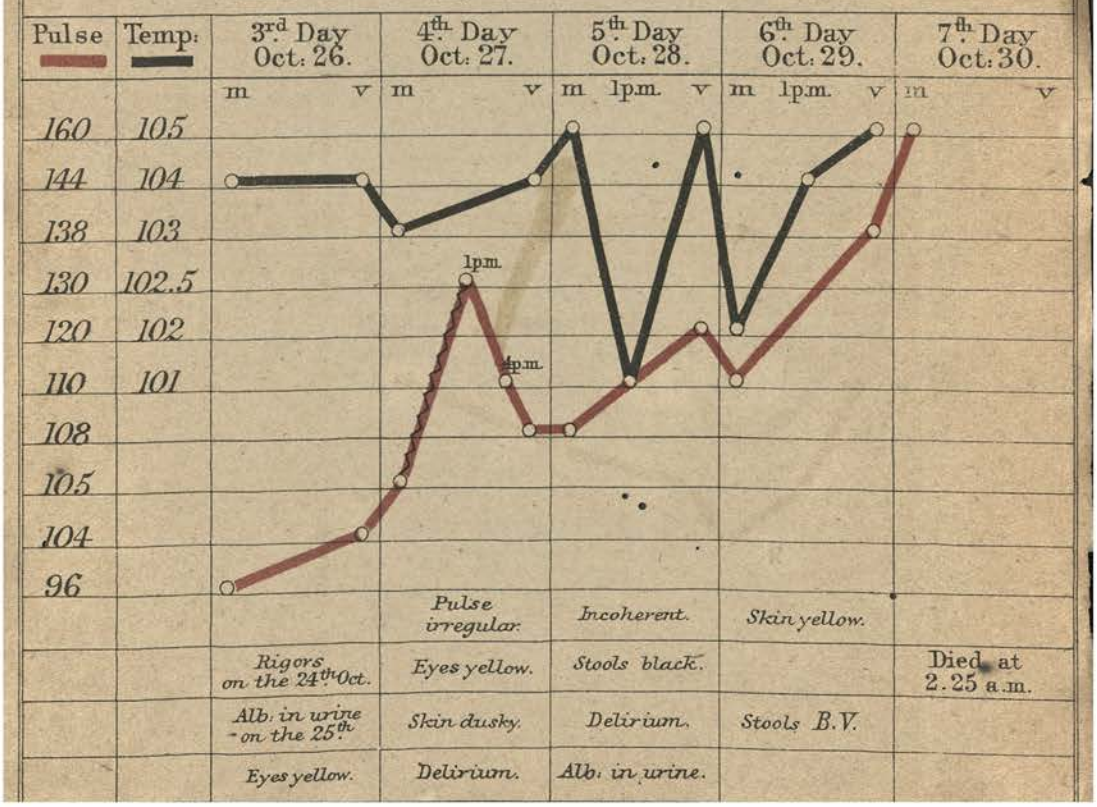
Nº 67.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



Nº 68.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS



Nº 69.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.

Pulse	Temp.	October 31st 6.30 p.m.	October 31st 9.30 p.m.	November 1st 4th. Day.
100	102			
94				
			Slightly incoherent.	
			No complaint.	
		Eyes injected & yellow.	Suppression of urine almost entire.	Died at 5.45 a.m.
		Slightly incoherent.	Alb: 2/5.	

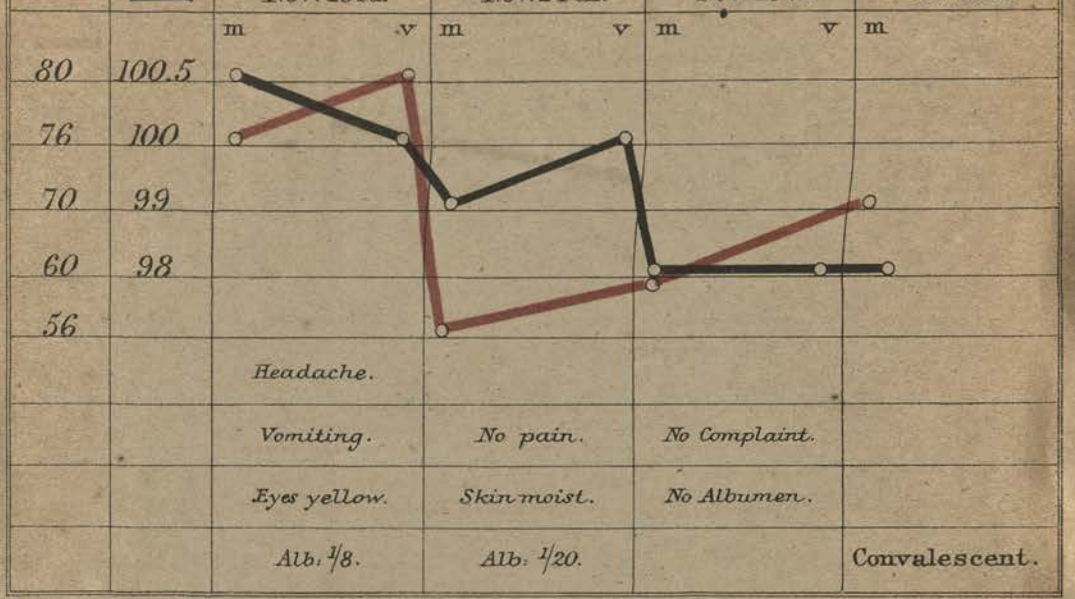
Nº 70.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.

Pulse.	Temp.	1st Day Nov. 3.	3rd Day Nov. 5.	7th Day Nov. 9.	8th Day Nov. 10.	9th Day Nov. 11	10th Day Nov. 12.
		V	m V	m V	m V	m V	
130	100						
60	99.5						
50	98						
48	97						
			Headache.				
		Rigors.	Vomiting.		Pulse irregular.		
			Eyes injected	Tongue tremulous.			
			Albumen in urine.	Headache.	Alb. a trace.	No Complaint.	
			Epigastric tenderness.	Alb: 1/4.			Convalesct

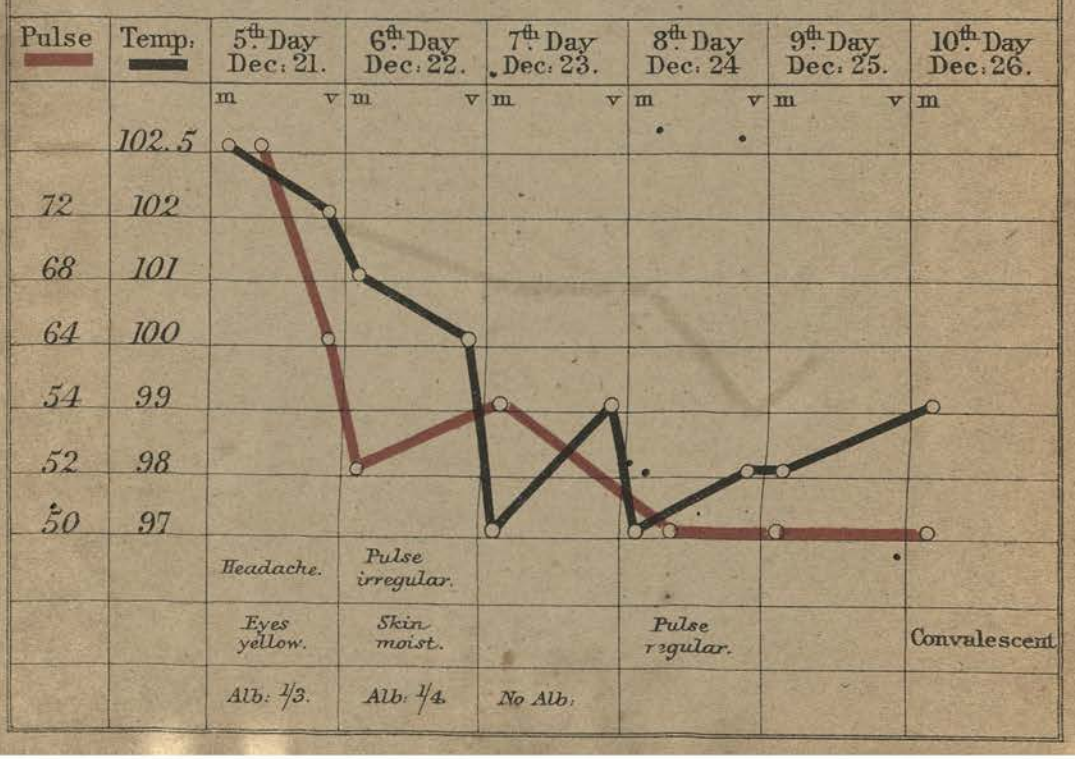
Nº 71.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



Nº 72.

DIAGRAM OF PULSE, TEMPERATURE AND SYMPTOMS.



Appendix, No. III.

ON THE

DIETING OF SEAMEN.

BY

ALEXANDER RATTRAY, M.D., Surgeon, R.N

Appendix, No. III.

Appendix, No. III.

ON THE

DIETING OF SEAMEN.

BY

ALEXANDER RATTRAY, M.D., Surgeon, R.N.

THE domestic history of Her Majesty's Navy during the past hundred, and especially thirty, years, is one long chapter of reform. Pre-eminently noteworthy is the gradual rise of the now firmly established doctrine that prevention is better than cure. At the present day the most important, if not the majority, of medical legislative enactments have that object principally in view; and that the value and wide bearing of the above aphorism are as fully recognised by the State as by the public, is shown by the commendable attention now paid to judicious suggestion. One of the characteristics of the age is solicitude to all that concerns the welfare of seamen, and in no service are their comfort, happiness and health more sedulously watched than our own, as in none have more numerous and important improvements relating thereto been introduced, especially of late.

Among other innovations, the victualling has undergone marked changes; and it is well to remember that though various agencies may sooner influence the health of seamen, few have a greater effect on their general well-being and utility than their diet. Health is intimately related to happiness, and gratitude to gratification; feed them properly, and they will be both healthy and happy; they will fight well, and work cheerfully; their duty will become a delight, and obedience a pleasure. From no other source are contentment and love for the service more likely to spring, than from one which appeals so directly to the individual, and ministers so much to his enjoyment; and the little control seamen have over a matter in which they themselves have the chief interest, is a claim for sympathy, which, added to an earnest desire for their benefit, makes how to diet them judiciously a subject of more than professional interest,

interest, and gives sufficient warrant for continuing reforms, which it is the province of medicine to point out, but the privilege of the State to act upon; nor, if we can make seamen stronger and longer-lived, ships less sickly, fleets more efficient, long voyages, foreign, and particularly tropical, stations less unhealthy, will further innovations requisite to attain so important and desirable an object be deemed superfluous or ill-timed.

1st.—The General Principles of Dieting Seamen.

Recognising the maintenance of a healthy navy as the great aim of naval medicine, and hygiene as the principal means by which this may be effected, our first duty is to carefully select men, physically, morally, and mentally fit for the service, and especially boys, more plastic in body and brain; but, having acquired such a force, our second object, of equal moment, is to keep them healthy.

Unremitting attention to sanitary indications is as necessary to retain the vigour of a ship's company as constant drill and physical training to render them efficient man-of-war's men. Fortunately, at least, some of the agencies by which this result may be effected are as much under control here as elsewhere.

From his earliest existence man is subjected to certain health-giving influences, as well as to others which are disease-inducing; so that at all ages, and in all conditions and climates, health may be regarded as a constant struggle against sickness, life against death; and, for seamen, there are many obvious reasons for vigorously aiding all salutary and lessening all injurious agencies.

Food is one of the most important agencies that act on the human economy, one which may influence the system of the sailor either for good or evil, and be health-infusing or health-impairing. From the moment of our endowment with life, it is indispensable to comfort, happiness, health, nay, existence. Man's frame is not permanent, but temporary, and constantly undergoing change. To meet this "constant change," he needs aliment; and to effect its purpose, it must be administered under certain conditions as to the quantity and kind of its animal, vegetable, and mineral constituents. It must be appropriate, sufficiently plentiful, of good quality, and free from noxious elements. Good water, proper food, and pure air, are essential to health; the first two are to furnish the blood with material to sustain and enable the system to carry on its various functions; the latter to elaborate that fluid, and remove impurities.

It is the food which enables the brain to think, glands to secrete, muscles to move, body to grow and renew its tissues carried off by interstitial decay, preserve its temperature, perform the numerous functions of animal and vegetable life; and the various organs, many parts of one great whole, to act vigorously and in unison. Without a due supply of appropriate food, we cannot expect to make healthy sailors of growing lads, give athletic frames to seamen,

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or make anything else than impoverished blood ill adapted for vital processes, and for giving stamina to the system to enable it to resist debilitating agencies, and ward off threatened sickness. Without a proper diet, the most important of the three necessaries of life—attention to other hygienic agents, so necessary on shipboard, especially cleanliness, dryness, and ventilation—will prove unavailing to preserve health and prevent disease.

Corroborative evidence of this was adduced in a former paper,* which proved that the majority of seamen gain in flesh, strength, and health in temperate climates, like that of England, on a judicious diet; and that many will gain in flesh, or at least lose less, in a debilitating tropical climate than they otherwise would, provided a diet, including fresh meat, is administered. On the other hand, when disease has gained a footing, it is the gastric and pulmonary supplies that give the system strength to cast it off speedily, to recover rapidly, and quickly bring back its wasted and weakened organs to their wonted bulk and vigour; that restore loss of substance from excessive interstitial waste or surface lesions, both, common sequelæ of sickness: hence the value of a constant provision of nourishing and health-giving food, and disadvantage of the use of that kind which is weakening and health-impairing; the importance of the former both in normal and abnormal life, health and disease, the preservation or restoration of the one, and prevention or cure of the other, and more particularly its great benefit when health and strength are apt to be undermined by other powerful agencies which an injudicious diet might materially intensify. With all three forms of aliment, poisons may be introduced into the blood, and many well-known ailments and morbid states of individual organs, or of the system generally, be thereby induced.

Improper food has long been a fertile cause of sickness at sea; and though the diet has been greatly improved, even since the important reforms suggested by Blane in the end of last century, it becomes us to inquire whether our advanced knowledge of the causes of disease may not, still further, benefit seamen by increasing their salubrity. The average death-rate and amount of sickness among seamen, at least in Her Majesty's Navy, are, even now, lower than in civil life. But when we consider that the service consists chiefly of picked men and boys, of the healthiest ages, selected for their vigour, and subsequently trained and treated solely with a view to convert them into physical athletes; and that the two extremes of life, old age, and especially childhood, which materially augment disease and death among landsmen, are wanting here; we can only conclude, that the reason why both have not yet attained a considerably smaller ratio is, that certain causes of detriment are still at work to prevent it. The detection of these, of how this superfluous sickness and suffering, loss of health and life, may be prevented or lessened, and whether any of it may be traced to our present diet systems, are therefore important questions.

2nd.

* Statistical Report of the Health of the Navy for 1866; Appendix, pp. 47–53.

2nd. How Seamen *are* Fed.

It was principally to the insufficient nutrition of the erroneous dietary in use in her Her Majesty's Navy prior to Blane's reform of 1797, deficient in quantity and defective in quality, that the scurvy, dysentery, fever, putrid ulcer, and other diseases of debility, which formerly ravaged our fleets, and crippled and killed many more than the conflicts then so common, was principally due: though long subjection to the obnoxious diet during protracted blockades and tedious voyages, and limited opportunities of procuring fresh supplies when abroad, aided by overcrowding in small ships, and the then imperfectly studied and enforced public and private hygiene, acting on the unhealthy frames of a class differing from our modern carefully selected man-of-war's men, doubtless greatly disposed to and aided the issue in question. Since then there has been a material diminution in the amount of disease and death; chiefly contemporaneous with, and bearing the relation of cause and effect, to various hygienic, and especially dietetic, reforms. In the above-mentioned year, the scanty and unwholesome victualling was changed, greatly improved, strictly regulated, increased by at least one-third, and lime-juice issued at sea. How meagre was the previous diet is proved by the fact, that the new scale gave no more than ¾ lb. of salt meat and 1 lb. of biscuit. Since then various alterations have been introduced, such as issuing salt meat at a much earlier period after being cured, biscuit sooner after baking, and the supply of better articles of food.* In 1815, iron water-tanks, previously partially introduced in place of casks, were more generally adopted, and gave an ampler supply of pure water. In 1825, cocoa was given in lieu of gruel (burgoo) for breakfast; the daily half-pint of spirits, one-half usually issued at dinner, the remainder in the afternoon, was supplanted by one gallon of beer at dinner, and tea or coffee in the afternoon. In 1831, the beer was superseded by ¼ pint of rum for dinner grog. In 1850, the daily allowance of biscuit was increased to 1¼ lb., and salt meat to 1 lb., with various minor improvements. In 1867, an Admiralty Circular made the dietary as it now stands (Table 1), and ordered the issue of ¾ lb. preserved meat every alternate salt beef (*i.e.*, every third) day, with preserved potatoes or rice. Although the naval dietary has thus undergone various alterations, it is worthy of notice that the diet which formerly produced such grave results was not very dissimilar in kind from that now in use. So that if the regimen, the crowded state of vessels, and long voyages, had not undergone a more decided improvement than the diet, these benefits would not have been so marked. Although we never meet with the above-mentioned ailments now in the severe and fatal type of that age, they have not been eradicated, but only diminished in force and frequency; and as long as the most fertile and constant causes

* Wilson: Statistical Report of the Health of the Navy for 1830-36.

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causes of all continue in operation, we may still expect them to appear in minor and milder forms, when other conditions necessary for their development are present. Ulcer and dysentery, at least, and other ailments that often directly or indirectly result from peculiarities in provisioning, and have a distinct scorbutic alliance, are still frequent at sea. Though several times amended, it was never in the right direction, and each successive alteration, in one article of diet at least, only tended to intensify the evil by increasing the quantity issued. In fact, it was not till the last-mentioned change, that the innovation which of all others is most likely to perfect the healthiness of the service, viz., an improvement in the sea dietary, and the introduction of preserved meat and vegetables, was begun. For the experiments previously detailed,* show how much a diet, which is only partially fresh, influences health, weight, and vitality, and proves generally that diet is still a powerful instrument, not only in inducing sickness, but impairing health; and that the late scale,† especially when conjoined with impure air, broken rest, climatic vicissitudes, malaria, and other insalubrious agencies, was in several respects erroneous, and neither health-giving nor health-preserving, but the reverse; and similar results may be predicted of any scale imposing a too frequent issue of salt provisions; for all experience teaches that any systematic departure from the laws of health must exert its influence on the system sooner or later.‡ The principal conclusions drawn from the experiments now alluded to were—

First. That the too free use of salt meat, with a limited supply of anti-scorbutic vegetables, is not only an occasional cause of true scurvy during long voyages, especially towards their termination, but of other ailments that evidently mark an incipient stage of the diathesis, *e. g.*, phlegmon, abscess, &c., and also the chief cause of the obstinacy of many local diseases, such as ulcer, &c., claiming a different origin.

Second. That the imperfect sustenance and mal-nutrition of a salt meat diet may generate *de novo* not a few of the manifold forms of struma, and other diseases in which mal-assimilation is a prominent feature, and perhaps rheumatism, both frequent among seamen in all, but especially tropical, latitudes, and that it certainly develops and aggravates active disease in systems previously tainted with other congenital or acquired blood poisons, syphilis, rheumatism, scrofula, and corresponding constitutional cachexies.

Third

* Statistical Report of the Health of the Navy for 1866; Appendix, pp. 44–71: On the Influence of Diet and Climate on Health and Disease, as indicated by the Weight.

† The majority of these experiments were made before the introduction of preserved meat came into force on the Australian Station.

‡ Carpenter: "Human Physiology."

Third. That the use of a diet scale adapted for temperate latitudes in tropical climates, and especially one with salt meat as a chief item, is another frequent cause of disease. For not only does the resulting over-repletion and excessive azotization and carbonization of the blood tend to induce affections of the eliminatory organs which have to get rid of the superabundant matter, and, so cause hepatic, nephritic, cutaneous, febrile, and other disorders; but these causes also tend to originate dysentery, diarrhœa, and other congestive ailments of the already over-excited gastro-intestinal canal. These results are all the more likely to follow if the diet is not only excessively fleshy, but also salt and laden with chemicals which both irritate the gut and add to the blood-vitiation, and thus directly and indirectly engender liability to local congestions and hæmorrhage from slight causes, with a tendency to disorganisation of tissue, and the development of ulceration, especially of the mucous surfaces.

Fourth. That the debility and asthenic state induced by a salt meat diet, especially the superfluously animal one of the tropics, predispose the system to disease, and render it prone to epidemic, endemic, and especially malarious ailments, all frequent, serious, and fatal among seamen, especially in low latitudes, where climate aids both in weakening the body and depraving the blood.

Fifth. That even when salt meat does not originate actual disease, it causes a marked decrease in weight and an impaired physique, strength, and vitality, when prolonged beyond a certain time, which may be regarded as an indication of failing health, or tantamount to a manifestation of incipient illness.

Sixth. That salt meat in the tropics is not only a direct source of detriment, but tends to intensify the injurious effects of climate, as manifested by an increase in the usual physiological and pathological phenomena; the former shown by loss of flesh, the latter by a large amount of sickness. To these we may add—

Seventh. That the ration of rum is doubtless injurious in most, and decidedly hurtful in warm regions; as it slowly and insidiously impairs health, and both excites and predisposes to disease, by causing gastro-intestinal irritation and congestion, as well as hepatic and other affections arising from super-carbonized blood.

The loss of flesh here alluded to (especially observable from Table 2, Appendix for 1866) is really the essence of scurvy, its primary stage, arising from the same cause as its more serious forms of dysentery, fever, and putrid ulcer, once so common; and the correspondence

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spondence in principle and nature here evident between the general loss of substance, as indicated by the decrease in weight, from absorption of internal tissue, in this the early stage of the disease, compared with that of the visible, external, and superficial loss of substance so remarkable in the cutaneous ulceration of advanced scurvy, will surely be apparent even to the non-professional mind.

And the reason why the diet formerly in use caused so many physiological and pathological phenomena, and why it was necessary to partially supplant salt by preserved meat, is obvious enough. Nature has not only bountifully supplied us with food, and made special provision for each zone, but has laid down definite laws of feeding for our guidance, both in our own region and when we migrate to others. And we never find the natives of tropical countries supplied with a highly fleshy and nitrogenous diet like that usually given to seamen in warm latitudes; but a more vegetable and starchy one, which furnishes all the elements necessary for the climate, while it throws no superfluous matter into the blood. This food is always found in the fresh, and never in the salt state. The diet should always therefore be as fresh as possible, and different in the tropics from elsewhere, otherwise various untoward results occur. The ingestion of highly-salted, shrivelled, hardened meat, deprived of its nutritive qualities by pickling and boiling, acts as a local mechanical irritant. Blood elaborated therefrom is impoverished and vitally changed, unfit for the constructive and reparative processes, for preserving or restoring the bodily vigour, and tends both directly and indirectly to induce disease. These results are especially imminent in the tropics, where gastro-intestinal ailments are common, the system revolutionized and debilitated by climate, the blood deficiently oxygenated by the influence of the latter, and overcharged by poisons from the usual highly nitrogenous salt meat diet. If we give the digestive organs faulty food on which to act, the blood unfit elements to assimilate, and the body plastic matter ill adapted to carry on its various functions, all three necessarily rebel. Thus disease begins when it would not otherwise occur, and frames we wish to strengthen are debilitated; so that instead of warding off malarious, epidemic, and other adverse agencies, they readily succumb to them, and, with greater difficulty, recover from their influence.

As with the late introduction of preserved meat into the naval scale, so it should be our constant endeavour to remove every source of detriment from the seaman's path. His diet should be one that prevents all these contingencies, preserves the weight and physique instead of impairing them, increases health instead of undermining it, and lessens disease instead of augmenting it. If sickness does come, let it be from other agents than the food. The majority of the dietaries now in use, however, it is only fair to remember, were originally constructed when few served in the tropics, when the necessity for a special tropical regimen was unrecognised, and the meat-preserving art in its infancy.

The

The following scale will show how seamen are now dieted in Her Majesty's Navy:— Appendix, No. III.

TABLE 1.

Present Naval Dietary.

Daily		Biscuit	1¼ lb.	
		Sugar	2 oz.	
		Chocolate	1 oz.	
		Tea	¼ oz.	
		Spirits	½ gill.	
		Harbour:		
		Fresh Meat	1 lb.	
		Vegetables	½ lb.	
		At Sea:		
	Alternately.	Preserved Meat	¾ lb.	
		" Potatoes	¼ lb.	
		or Rice	¼ lb.	
		or Rice	⅛ lb.	
		or Preserved Potatoes	⅛ lb.	
		Salt Beef	1 lb.	Once a week, alternately, in harbour.
		Flour	9 oz.	
		Suet	¾ oz.	
		Raisins	1½ oz.	
		Salt Pork	1 lb.	
		Split Pease	⅓ lb.	
Weekly		Mustard	½ oz.	
		Pepper	¼ oz.	
		Vinegar	1 gill.	
		Oatmeal	3 oz.	
		Celery seed	½ oz. to 8 lbs. pease, or 24 men.	
		Lime Juice	½ oz.	Issued at discretion of Surgeon.
		Sugar for ditto	½ oz.	

This may be described as a *mixed* diet, consisting partly of animal and partly of vegetable matter, constructed for men of active habits, for the temperate climate of England, or like latitudes, in which they are chiefly employed, and for the Anglo-Saxon race by which our ships are principally manned. It is, moreover, a *double* dietary, inasmuch as the impossibility of issuing fresh meat and vegetables during long voyages necessitates the employment of substitutes, viz., salt or preserved meat for the former, and flour pudding, pea-soup, preserved potatoes, and rice for the latter. It is also a *universal* dietary, because used in all latitudes, climes, and countries, except Arctic regions, for which special provision is usually made; and it may be fairly regarded as a *representative* dietary, from resembling those of the mercantile marine and most important civilized nations, whose ships, as with England and her colonies, belong to, and cruize chiefly in, the temperate zone. Hence the subject is one

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in which, if not in foreign fleets, at least the 250,000 sailors of the merchant service and 96,000 of our colonies are as much interested as the 50,000 of the Royal Navy. Why should the dieting of seamen in the merchant and Imperial services, especially large ships on long voyages, differ much, if at all? Or, if a scale is found to be healthy, sufficiently abundant, and generally suitable for man-of-war's-men, why should it not be equally well adapted for seamen generally, special attention being paid to national habits, prejudices, and peculiarities?

3rd. How Seamen *ought* to be fed.

The intimate connection that exists between diet on the one hand, and health and disease on the other, has been long recognised. We are told, that to know the cause of disease or bodily detriment is sometimes to be able to cure, often to prevent it.* Very simple conditions as to dieting caused the previously mentioned manifest effects; and, judging from former improvements in provisioning, might not equally simple measures be sufficient to prevent such subtle forms of disease as may still remain? There is reason to believe that the more we elaborate our modern dietaries, the more decided will be the health and efficiency of seamen generally; while the sickness now prevalent both in temperate and tropical latitudes will thereby be greatly diminished.

Nature has laid down certain great laws of feeding which it is our highest wisdom to follow; and theory indicates that our aliment should everywhere be fresh, like the creative supplies, each lavishly provided in its own zone, but less plentifully elsewhere; that in temperate latitudes it should be of mixed animal and vegetable matter, and more highly vegetable in the tropics, in conformity with native usage, and chiefly animal and oily in Arctic or sub-arctic regions; and that it should everywhere present considerable variety of detail. While experience testifies that the Anglo-Saxon race attains its highest health when individuals conform closely to these conditions, and modify their diet and regimen according to climate, and other specialities of the latitude in which they happen to be placed. Regarded from this point of view, the majority of the diet scales now in use have certain faults, which may easily be rectified; thus,—

1st. They are too unvarying in all latitudes, tropical and temperate.

2nd. The highly salted beef and pork issued at sea, and scanty supply of proper vegetable matter, are objectionable, especially in the tropics.

3rd. The same diet is given in warm as in cold regions, instead of one less nitrogenous and stimulating, and more vegetable.

4th. The

* Watson: "Practice of Physic."

4th. The spirit ration, which is not only unnecessary to comfort but injurious to health, especially in the tropics, is also obnoxious.

Thus, as a rule, our present sea dietaries for all latitudes, and also the harbour scale for the tropics, are injudicious; and the harbour scales for temperate regions is all that might be retained; though even they might be advantageously amended.

The admirably planned scheme now in use in Her Majesty's Navy, certainly the most judicious of all existing scales, has certain recommendations which ought to be kept in view in framing new ones: for example, it is a mixed diet, such as best suits our race; sufficiently ample for men of active habits like seamen; admirable in kind, at least as far as the harbour diet for temperate latitudes is concerned, besides containing many articles not only nourishing but well adapted in other respects for the exigencies of life at sea.

Before attempting to frame a dietary, we should have definite objects in view, and clear notions as to its character and requirements. Now, a safe rule in provisioning seamen, applicable in all circumstances, and for the most part easily carried into effect when fairly encountered, is to regulate the ingesta so as to supply the blood with plastic elements of such kind and quantity as will counterbalance the constant drain which the various processes of animal and vegetable life involve, and increase, diminish, or vary them so as to enable growth to equal waste of tissue. To preserve health and prevent disease, we must, as much as possible, make the diet accord with the wants of the system in all the diversified conditions as to climate, work, &c. in which it may be placed. We ought to administer such aliment as will furnish material to assist nature to convert the growing lads and young men who form the mass of our ship's companies, into the athletes required to man our vessels; both bring them to, and preserve them in, the highest state of physical efficiency wherever sent, and however employed; and not only keep them in health, but have no tendency either to induce disease *per se*, or develope or aid other injurious agencies, whether of internal or external origin.

To make a suitable dietary, then, it must possess certain requirements, and the principal things which ought to be attended to in framing it are, first, the *nature* of the food; second, its *quality*: third, its *quantity*; and, fourth, *variety*. It should be of an appropriate kind, of proper character, sufficiently abundant, and suitably diversified; any material, and especially a prolonged, departure from any one or all of these essentials is certain to be followed, particularly in weakly subjects, and during subjection to other health-impairing agencies common to sailors, by imperfectly performed vital functions, and ultimately disease.

The principal conditions which determine the *nature* of their food are region, race, employment, habits. Man everywhere needs a mixed animal and vegetable diet, necessarily differently apportioned, as already explained, according to climate; and, in each, nature for the most part providently supplies the exact variety required; highly carboniferous for cold regions where much heat-producing material is needed; chiefly hydro-carbonaceous for warm climates,

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where inert life involves little muscular waste and necessitates no added heat; and a mixed animal and vegetable regimen for the bodily and mentally energetic natives of intermediate zones, who waste much brain and muscle, and often require additional warmth. And when the inhabitants of either migrate, they find it their greatest safeguard to accommodate their habits, clothing, and, above all, their diet, to the new clime. Our Anglo-Saxon sailors, born, reared, and chiefly employed in temperate regions, obviously require a mixed diet such as we ourselves use, so long as they remain within their limits; but, when they leave them for the tropics, their diet evidently needs to be changed to meet the altered requirements of the system, to be made less animal and more vegetable, and somewhat more like that of the natives. At sea, the impossibility of providing fresh newly-killed meat and succulent vegetables for any length of time prevents this rule from being carried so fully into effect as we could desire, and we must there employ eligible substitutes. Salt and lately-preserved meats, for example, have been given in lieu of the one, and pea-soup, flour-pudding, &c. for the other. This obviously indicated change of diet with climate has been hitherto inadequately recognised, even in private life. The late East India Company and Dutch navies are the only two which have made provision for tropical service. This may be partially, though not altogether, accounted for by the fact that, with the above exception, England is the only nation (France, the United States, and other great Powers not excepted) which keeps up large fleets on foreign, and especially sultry stations. With few large and important colonies, and more limited commercial interests, their navies are for the most part concentrated at home; and hence a sea and a harbour dietary for the temperate zone, each modified according to national proclivities, is all they possess, and for the most part all they need. In the English merchant service, in which the men are usually engaged for the voyage only, a sea dietary is what is chiefly required, and is that on which they principally concentrate their attention, but they make no provision for the tropics; even in the former instances the modification is incomplete. The vessels of the East India Company, employed altogether in the tropics, had separate scales for their Lascar and European crew; but the latter was of the same faulty nature as most sea-dietaries, for though it contained rice and other tropical ingesta, it gave salt meat at sea, and too little vegetable. The Dutch have a distinct tropical dietary in their East Indian possessions, where from one-sixth to one-fourth of their entire navy, and from 1,000 to 1,500 men are serving. But, though the harbour-scale judiciously affords an abundance of rice for breakfast and dinner, at sea it gives little suitable vegetable matter, and no preserved, but only salt meat, and that in too great abundance for the sultry climate, especially as no lime-juice, or other antiscorbutic, is given to counteract it, as in their extra-tropical dietary, when gherkins and vinegar are issued; and, therefore, like the former, it is less fit for the occasion than it might be. The diet of sailors belonging to tropical regions, highly athletic as a class, which consists chiefly of rice, is more appropriate. Experience proves the truth of the laws here laid down, and shows the advantage accruing from a suitable, and the results which follow improper

an improper, dietary. Sailors gain in health, strength, and flesh on a fresh meat and vegetable diet in cool climates (Appendix for 1866, p. 51, Table 6), while they lose in all respects on one of salt meat (*ibid.* Table 2), and especially when this is given in a warm, debilitating region (*ibid.* Table 1), or under other adverse influences like hard sub-solar work (*ibid.* Table 4), while these inimical results are materially lessened by the use of a judicious dietary (*ibid.* Table 5), with fresh meat and vegetables. Facts like these indicate that we should make special provision for tropical, as we have long done for Arctic, service, usually less deadly, and certainly far less detrimental to health. Appendix, No. III.

The *quantity* of food required by seamen is of equal moment. An insufficient supply even of good food will induce impoverished blood, impaired vitality, and ultimately disease; while excess is even more faulty and likely to undermine health, when it does not cause immediate illness. Care is therefore necessary to regulate the supply to the wants of the system. With seamen sent to serve in different latitudes, the amount of work they are called on to perform being much alike in all, climate is the principal agency which influences this also; and a different diet is evidently needed for the tropics, for there they require less heat-giving and perhaps less muscle-making and muscle-stimulating matter than in temperate latitudes; more vegetable, and less animal and fatty tissue. They are less exposed to cold and chilly weather, to abstract heat, and though required to work as hard, the languor which the climate engenders is apt to diminish their voluntary expenditure of muscle. And that there is a necessity, both for altering the relative proportion of its items, and decreasing the quantity of food issued on proceeding to the tropics, is shown by a wise indication of nature, which induces loss of tone not only in the cutaneous capillaries, but in the coats of the gastro-intestinal canal, the one indicated by increased perspiration, the other by a diminished appetite.* For temperate latitudes, experience proves that the present harbour-scale of Her Majesty's service is admirably adapted as to quantity for preserving health and strength,† and may therefore be fairly taken as a model after which other dietaries may be constructed, if necessary, to replace those now in use. The daily average amount of food and drink best fitted for men of medium size and weight, like seamen, *viz.*, from 5 ft. 8 in. to 5 ft. 10 in. in height, and from 140 to 160 lbs. in weight, has been carefully computed. Parkes gives it as 23 oz. of water-free food, and from 70 to 90 oz. of water, in moderate exercise.‡ And chemists have analysed it still more minutely; thus,

	oz.
Albuminous food - - - -	4½
Fatty „ - - - -	1
Starchy „ - - - -	16–17
Total (water free) -	22–23§

And

* Martin on the "Influence of Tropical Climates."
† Appendix for 1866; p. 51, Table 6.
‡ "Practical Hygienne." § Strange: "Restoration of Health."

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To this proportional scale we should endeavour to make our sailors' diet in temperate regions correspond. Without reference, therefore, to Liebig's idea of the appropriation of food by the fabric, Houghton's of the relation of food to force, or similar opinions, we may safely take nature and experience as guides, for it is evidently no mere theory but an "unthought of chemical instinct,"* which leads man to make his choice of diet and nature's provision of aliment accord so closely. But the harbour-scale of the present twofold dietary contains very nearly the physiological proportion of elements here given, thus:—

	oz.
Nitrogenous - - - - - -	5·0
Carboniferous - - - - - -	17·7
	22·7 †

It is therefore theoretically, as experience proves it to be practically, judicious, and well adapted for seamen.‡ So that in constructing a new dietary for extra-tropical regions we may safely and conveniently take it as a basis, as, both in quantity and character, it is well chosen and tried. That it is sufficiently abundant is proved by the average savings for food not taken up, per man, amounting to about sixty shillings a year. This slight over issue, however, is an error on the safe side, as it prevents any idea of stinting, and obviates the likelihood of waste apt to be engendered by unlimited supply of certain articles, biscuit for example, of some English merchant services.

And it may be safely followed in framing a proper tropical scale, the same article of food being suitable for both; those fitted for harbour and sea of either region being identical, and requiring modification as to quantity only.

We have no accurate estimates of what should be the relative proportions for the tropics; but it is evident that climate and the system must both be consulted, and the following may be taken as a fair approximate:—

	oz.
Albuminous (nitrogenous) - - -	3
Starchy (carboniferous) - - -	12-14
Total (water-free) - - -	15-17

on which to construct tropical diet-scales. Fortunately, as this would be somewhat difficult were it the only available plan, it is by no means indispensable or indeed necessary. For notwithstanding the labours of Liebig, Mayer, Frankland, Playfair, Smith, Wick, Wislicenus, Houghton, and other zealous chemico-physiologists, the relation of food to the fabric still remains very much in the domain of theory. Our views of the manner in which the various articles

* Aitken: "Practice of Physic."
† Letheby: quoted in Aitken's "Practice of Physic."
‡ Appendix for 1866, p. 51, Table 6.

articles composing man's ordinary aliment, nitrogenous, carboniferous, oxygenous, hydrogenous, saline, are apportioned among the different tissues and organs, for their renewal, growth, or the induction of their ordinary vital manifestations, whether brain or body work, secretion or excretion, assimilation or disintegration, is still little more than conjectural, and the various opinions held of the use and application of food in the animal economy, though interesting, have little real connection with the subject in question, or with the proper and practical mode of dieting seamen, which may be done with no guide but nature's provision, native custom, and service experiences, and with no aid either from physiological or chemical hypotheses. The natives, civilized and savage, both of tropical and extra-tropical regions, succeeded in adjusting their diet in this simple and suggestive manner long before such theories were thought of, and indeed the latter are usually merely analyses of diets that have been generally adopted after long trial, and it would be wise to follow their example, and base our dietaries on fact; for, however plausible and curious, doubtless a good test of accuracy, and sometimes a good aid, speculations alone are not sufficient to enable us to construct diet scales, especially somewhat complicated ones like those required for seamen.

Besides providing for the great divisions of climate, would it not be sometimes prudent to make certain less-marked modifications of diet, under special circumstances, to meet those minor variations to which seamen are everywhere subjected in accordance with *season*, especially in variable climates like our own, the Mediterranean, or other regions in either temperate zone. During summer months—especially June, July, and August, when the heat is sub-tropical, the average thermometer about 64° F.,* and very different from the remaining nine, particularly during winter with its average of 37° F.—might we not prudently give a modified or semi-tropical diet; more vegetable and less animal than now, in accordance with what inclination prompts and nature affords, for it is then that our instinctive desire for and supply of vegetable matter are greatest;† reserving the extra-tropical scale for the spring, autumn, and winter. Again, at places like Shanghae (N. lat. 32°), where there is an annual thermometric range of 75° F., should not the diet used during the intensely hot summer be different from that of the cold chilly winter, and the one of tropical or semi-tropical, the other that of temperate latitudes? And on the adjacent verge of the tropical and temperate zones, where season makes the climate either moderately cool or absolutely cold on the one hand, or comparatively hot or even sultry on the other, we might give a modified (semi-tropical), or the tropical dietary (Table 2) according to circumstances. Thus at Hong Kong, on the verge of the tropics (23½° N. lat.), but with a thoroughly tropical climate, where contrast makes the dry north-east monsoon, or winter season, feel comparatively cold, and the moist south-west monsoon or summer, excessively sultry and enervating, even to the native, would not two different diets be judicious; the ordinary

* Keith Johnstone's "Physical Atlas."

† In the tropics, sailors eagerly expend their savings on the fruit, vegetables, soft bread, &c., brought alongside for sale, and other articles suitable for the climate.

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ordinary tropical scale for the one and the semi-tropical for the other? All experience testifies how greatly health, both in public and private life, is preserved by minute attention to diet, and strictly adapting it to weather and season, or, what amounts to the same thing, climate; and the sanitary condition of seamen generally would doubtless be materially improved by regulating their food as we do their clothing, &c., and not only adopting a summer and winter scale in temperate latitudes; but having separate ones for the wet and dry seasons of tropical regions, whose climate and meteorology are so distinct. This, however, is obviously a minor consideration compared with the foregoing indication as to a regional system of dieting.

Variety of food is not only essential to health, but far more necessary to the sailor's happiness than generally supposed, and want of it is unquestionably a great fault in any dietary, especially for sea. All medical authorities agree in recognizing its importance as a hygienic agent in preventing scorbutus and other ailments. In harbour the present naval scale gives them fresh meat with soup six times a week, and salt beef with flour pudding, or salt pork with pea-soup once a week alternately. While at sea the constant round of salt beef and pork, flour pudding and pea-soup, is alternated every third day with preserved meat and preserved potatoes or rice, the latter being a recent innovation.* Might we not in this also more closely follow nature's guidance, and make both sea and harbour dietaries more varied, under the strong motive of a decided increase of comfort, health, and efficiency, certain to result.

The quality of the food issued is necessarily of vast importance in preserving health. Experience proves that in provisioning large bodies, the wisest policy and greatest economy both of men and money is to give it of the best quality.

As both preserved and salt meat are apt to deteriorate by keeping, they should evidently be issued as recently cured as possible. It has been proved over and over again that nothing is so costly in all ways as disease, and nothing so remunerative as the outlay which augments health.† It would be no economy to cheapen the diet, either by reducing its quantity or lowering its quality, at the risk of health and life. Regarded in this light, a diet may be cheap and yet injudicious; though it may save money it may be prodigal of life, and that diet alone is truly economical which neither predisposes to nor induces disease, but keeps the men as healthy as may be in all climates and circumstances. Still the most economical of all is necessarily that which is both directly and indirectly so; and would not only cause a diminished primary expenditure, but a reduced secondary outlay for hospital, invaliding, funeral expenses, medicines, medical comforts, and training new men, and, still more important, a diminished sick-list and death-rate.

The laws by which the provisioning of seamen should be regulated are thus very simple and obvious, and it will be clear that there are three great errors to be avoided—viz., the too free use of salt meat; the supply of a diet adapted for temperate in warm regions; and the

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* April 12th 1867. † Parke's "Practical Hygiene."

the constant issue of rum. Nature and common sense alike demanding that while there should be a scale for ships serving in temperate latitudes, there ought to be a distinct and modified one for the tropics, each being regulated in quantity and kind to correspond with climate; the impossibility of issuing fresh meat and vegetables at sea in both, and the absolute necessity for having substitutes, necessitating also that each zone should have its special and distinct sea dietary in addition to its harbour-scale, would it not, therefore, be judicious that our dietaries should possess a fourfold instead of the present twofold character, and include—

a. An extra-tropical harbour dietary.
b. „ sea „
c. A tropical harbour - „
d. „ sea - „

Having satisfied ourselves that in most instances a change in our present systems is necessary, the regulation of the diet for harbour service, both in temperate and tropical zones, will be, comparatively speaking, easy. In the former, no better guide to the proper quantity and kind of food can be had than the scale now in use in Her Majesty Navy, and the only manner in which this might be improved would be by giving a little more variety, as indicated in the following Table: and in the tropics, the quantity of both might be made to accord, more than yet sanctioned, with the requirements of the system and the climate, and made more vegetable, on the one hand, to suit the latter, and less animal, on the other, to agree with the former.

But it is the dieting of sailors at sea which has been, and still is, the great difficulty. If never required to go far from harbour, we might continue the fresh meat and vegetables of the harbour dietary; but ever since long voyages and protracted blockades became necessary, substitutes have had to be provided, it being impossible to make them last more than a week, ten days, or fortnight at furthest. The flour pudding and pea-soup given for the one were both highly nutritious and well adapted for shipboard; but the salt meat issued for the other, though the best our ancestors could invent, was a rude and elementary article, and most unnatural form of food, which once caused, and even now causes, much sickness, debility, premature decay, and death, especially in merchant services. The necessity for medicinal antidotes, or anti-scorbutics as they are termed (of which lime-juice has long been the favourite and perhaps the best), to counteract the results of the slow cumulative poison of salt meat on the blood and body, alone proves it to be an improper article of diet. But even lime-juice, in which we still put so much confidence, cannot counteract its effects beyond a certain time, perhaps not more than three, four, or at most six months.* And, even if it were possible to issue the best of all anti-scorbutics, viz., fresh vegetables, at sea, it is doubtful whether they would obviate this event, or hinder the injurious consequences of the one from prevailing over the prophylactic influence of the other, and final evolution of disease. There is strong presumptive evidence that, like

* Bryson.

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like lime-juice, they might for a time impede and lessen the pernicious results, but would not altogether, or indeed very long, retard their ultimate appearance. The only sure and safe remedy is to remove the injurious agent which causes it, and substitute a prophylactic diet, containing preserved meat. The lime-juice and other anti-scorbutics we now administer fail in their object, inasmuch as they do not always prevent disease in severe or even mild forms; and it appears unphilosophical to give a diet or article of food which subsequently requires the administration of anti-scorbutics, especially when dietetic, the only rational, anti-scorbutics are available, and a better substitute for fresh meat can be had than salt-cured beef and pork.

Long usage will not hallow the custom that is disallowed as a *necessity*. Knowing salt meat to be a hurtful agent, it should be, if not entirely banished, at least reduced to the minimum, and what remains be less pickled. All dietaries which retain it as one of their principal items will necessarily fail, as hitherto, in keeping seamen healthy. Instead of retaining it, therefore, as a principal item, it should be almost entirely supplanted by preserved meat. We should endeavour to assimilate our dietaries to those of landsmen, and in their construction study the anti-scorbutic properties of the *food* they contain more than the medicinal prophylactics necessary to counteract its pernicious effects, and make hygienic take the place of former therapeutic measures. Thus only may we certainly and surely obviate the evils now resulting from the use of salt meat.

Even recent dietaries give salt meat undue prominence, and only casually mention preserved meat as an optional substitute. Hence a long array of anti-scorbutics—pickles, vinegar, lime-juice, currants, raisins, prunes, dried apples, &c.—to counteract their effects. With the same object the East India Company issued an allowance of vinegar, &c.; while the French Imperial navy supplies sauer-kraut and vinegar; the Portuguese, compressed vegetables and vinegar; the Turkish navy, onions, olives, and vinegar; the Dutch, gherkins, lime-juice, and vinegar, and, in their East Indian squadron, onions and sweet-potatoes. Admirable additions to any sea dietary, as necessaries or luxuries, these should not be needed as prophylactics. The more rational plan was adopted in Her Majesty's Navy during the Russian war (1853–6), when preserved meats and compressed vegetables were occasionally issued instead of salt; and the bad quality of the article, supplied by contract, appears to have led to its discontinuance. Two years ago a similar but still partial attempt was again made; an Admiralty Circular, ordering the issue of preserved for salt meat every third day, with preserved potatoes or rice. The dietary of the Swedish Royal navy contains the following: "Preserved meats with compressed vegetables may be substituted for salt meat and peas, after being at sea for some time, if necessary."* This judicious rule, however, has the fault of being optional, and not compulsory. A few shipowners in the English merchant service also give preserved meat once a week at sea, but, as a rule, none is allowed. All this is in the right direction; but is not the reform incomplete, and should not the issue of salt meat be still further limited; and, finally,

* From MS. lent by Dr. A. E. Mackay, Somerset House.

finally, when a more perfect meat-preserving process enables, almost abandoned? To diet seamen with a due reference to health and comfort, they should have fresh meat and vegetables at least on six days of the seven; and, granting that preserved meat, though far from equal to fresh, is healthier, more palatable, and altogether better for seamen than salt junk, the questions arise how often ought we to give it; taking its low price and quality into account,* are we justified in withholding it as we now do; and should we not issue it with equal frequency? If the prolonged ingestion of salt meat four or five times a week impairs health, ought we not to exhibit the former oftener; and instead of every third day, as in Her Majesty's Navy, once a week in merchant-men, and at option in the Swedish service, give it at least every other day; or, to complete the reform, five or six days per week, and thus fully accept evident, though still limited, advantages.

We have not yet discovered how to counteract the injurious effects of warm weather on the frame of English seamen; but we know that they are materially increased by most dietaries now in use; and it follows that, by acting on the indications here pointed out, improving our diet systems, substituting preserved for salt meat, and specially modifying the food in the tropics, the two changes most required, we shall not only diminish the unhealthy effects of diet, but also those of climate, and thus at one and the same time remedy both—an additional motive for reform.

Although seamen need less food in warm than in temperate latitudes, the amount in the tropics that will suit the lazy native, the inert European, or even the English soldier, whose work is comparatively light, will not do for the active sailor; inasmuch as the heavy gun, cutlas, sail, and other drills common on shipboard, entail the expenditure of much muscular force, which can only be met by an appropriate supply of food; and although this might be effected by a diet nearly entirely vegetable, habit and custom, which render a certain amount of animal food almost indispensable to the comfort of English seamen, perhaps make it imprudent to reduce the quantity by more than one-fourth, leaving enough for the wants of the system, and yet not sufficient to cause disease.

The following may be now suggested as an appropriate diet scale, based on the major indications here laid down; as a mixed diet, fitted for natives of temperate latitudes, but regulated, both as to quantity and kind, for tropical service; special provision being made for long sea voyages, and the combination of variety with the abundance necessary for men of active habits and athletic frames. The improvement of a scale that contains much that is good is the part of prudence. Between the retention of the suitable, and the rejection of the injudicious, lies the line of all true conservative suggestion. The injurious, distasteful, or unnecessary, are to be banished or limited as far as possible; the weeding of what is noxious, replacement by more nutritious and better selected articles, and the addition of others likely to prove beneficial to health, comfort, or happiness, being the part of discretion, to which both duty and privilege will endeavour to attain.

* The usual contract price of *salt* beef and pork at Deptford Royal Naval Victualling Yard is 7 *d.* per lb.

TABLE 2.

PROPOSED NAVAL DIETARY.

		Temperate, where the Daily or Annual Range of Temperature is below 70 Fahr.	Tropical, where the Daily or Annual Range of Temperature is above 70 Fahr.
Daily	Biscuit, or soft bread (*r*)	1¼ lb.	1¼ lb.
	Sugar	(*a*) 2⅔ oz.	(*b*) 2 oz.
	Chocolate (*c*)	1 oz.	1 oz.
	Tea	¼ oz.	¼ oz.
	Coffee	(*d*) ⅓ oz.	—
	Lime-juice	(*e*) ½ oz.	(*f*) ½ oz.
	Sugar for ditto	(*e*) ½ oz.	(*f*) ½ oz.
	In Harbour (when procurable).		
	Fresh meat (*g*)	1 lb.	12 oz.
	Vegetables (*h*)	(*h*) ½ lb. alternately.	12 oz. alternately.
	Or Rice	(*k*) 6 oz. alternately.	9 oz. alternately.
	Molasses	(*k*) 1 oz. alternately.	1½ oz. alternately.
	At Sea (or when Fresh Provisions cannot be procured).		
	Preserved meat (*l*)	¾ lb.	(*o*) 8 oz.
	Pearl barley (*s*)	2½ oz.	3 oz.
	Or Flour (pudding)	9 oz.	12 oz.
	Suet (pudding)	¾ oz.	¾ oz.
	Raisins (pudding)	1½ oz.	2 oz.
	Or split pease (for soup) (*p*)	⅓ lb.	½ lb.
	Or Rice	(*m*) 6 oz.	9 oz.
	Molasses	(*m*) 1 oz.	1½ oz.
	In Harbour and at Sea.		
Once a Week	Salt meat (*n*)	1 lb.	12 oz.
Weekly	Mustard	½ oz.	½ oz.
	Pepper	¼ oz.	¼ oz.
	Vinegar	½ gill.	⅓ gill.
	Oatmeal	3 oz.	3 oz.
	Celery seed	½ oz. to 8 lbs. pease, or 24 men.	

(*a*) One oz. each for the chocolate and tea, ⅓ oz. for the coffee.—(*b*) For equal division among the two following.—(*c*) At sea, in addition, ½ oz. chocolate and ½ oz. sugar per man of the middle and morning watches.—(*d*) After dinner, in lieu of the spirit ration.—(*e*) After ten days at sea, on the surgeon's recommendation.—(*f*) In lieu of the grog ration.—(*g*) Beef and mutton alternately, and occasionally pork in cold climates; for variety, these might be sometimes roasted.—(*h*) Succulent, alternately with potatoes; in the tropics, yams and pumpkins; for variety the potates and rice might now and then be converted into soup.—(*k*) During summer.—(*l*) Beef and mutton alternately.—(*m*) During summer, and for the semi-tropical dietary.—(*n*) Beef and pork alternately; in harbour, the former with pudding, and the pork with pea-soup rations; at sea, the beef on pudding, and pork on pea-soup, days.—(*o*) Cold, if preferred.—(*p*) When pea-soup falls on preserved meat days, the 4, 6, or 8 lb. piece of salt pork or beef (necessary ?) for making it may be deducted from the subsequent issue of salt meat.—(*r*) At discretion in harbour.—(*s*) For broth, with the preserved meat.

The following Table will illustrate the practical working of this scale, and show how much variety may be given, with very little trouble, to the sailor's diet. Appendix, No. III.

TABLE 3.

To illustrate the working of the Diet Scale with reference to the Principal Meal, Dinner.

	Temperate—Cold or Cool Climates.	
	Harbour.	Sea.
1. Sunday	Fresh beef - with potatoes	Preserved beef - with pea-soup.
2. Monday	„ mutton „ vegetables	„ mutton „ pudding.
3. Tuesday	„ beef - „ „	„ beef - „ barley broth.
4. Wednesday	Salt pork - „ pea soup	Salt pork - „ pea-soup.
5. Thursday	Fresh mutton „ potatoes	Preserved mutton „ pudding.
6. Friday	„ beef - „ „	„ beef - „ barley broth.
7. Saturday	„ mutton „ vegetables	„ mutton „ pea-soup.
8. Sunday	Fresh beef - with vegetables	Preserved beef - with pudding.
9. Monday	„ mutton „ potatoes	„ mutton „ barley broth.
10. Tuesday	„ beef - „ „	„ beef - „ pea-soup.
11. Wednesday	Salt beef - „ pudding	Salt beef - „ pudding.
12. Thursday	Fresh mutton „ vegetables	Preserved mutton „ barley broth.
13. Friday	„ beef - „ „	„ beef - „ pea-soup.
14. Saturday	„ mutton „ potatoes	„ mutton „ pudding.

	Tropical—Warm Climates.	
	Harbour.	Sea.
1. Sunday	Fresh beef - with potatoes	Preserved beef - with rice.
2. Monday	„ mutton „ vegetables	„ mutton „ barley broth.
3. Tuesday	„ beef - „ rice -	„ beef - „ pudding.
4. Wednesday	Salt pork - „ pea-soup	Salt pork - „ pea-soup.
5. Thursday	Fresh mutton „ potatoes	Preserved mutton „ rice.
6. Friday	„ beef - „ vegetables	„ beef - „ barley broth.
7. Saturday	„ mutton „ rice -	„ mutton „ pudding.
8. Sunday	Fresh beef - with potatoes	Preserved beef - with pea-soup.
9. Monday	„ mutton „ vegetables	„ mutton „ rice.
10. Tuesday	„ beef - „ rice -	„ beef - „ barley broth.
11. Wednesday	Salt beef - „ pudding	Salt beef - „ pudding.
12. Thursday	Fresh mutton „ potatoes	Preserved mutton „ pea-soup.
13. Friday	„ beef - „ vegetables	„ beef - „ rice.
14. Saturday	„ mutton „ rice -	„ mutton „ barley broth.

Note.—The addition of rice to the temperate sea and harbour dietaries during the summer months, and for the semi-tropical dietary, would make the rotation identical with that in the tropical scale.

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The tropical and temperate scales here proposed contain no addition to the number of articles now or formerly in use in Her Majesty's Navy, either for the ordinary diet or use of the sick. Some are merely increased, others diminished or expunged from the list. Certain articles and quantities of the present have been adhered to in the proposed scale, and some altered; thus, the flour-pudding and pea-soup, which are healthful, palatable, and convenient for preservation, issue, and cooking, have been continued; also the fresh meat, vegetables, biscuit, tea, sugar, chocolate, lime-juice and condiments. Salt meat has been almost, and rum altogether, omitted; thus, the 1 lb. of salt has been replaced by ¾ lb. of preserved meat in temperate latitudes, and 8 oz. in the tropics, either equal in nutritive power to the former. Salt meat, recently and lightly pickled, might be issued once a week for change; given thus, less frequently and of better quality, it is unlikely to induce either debility or disease. The rum, already wisely and beneficially abandoned by a large part of the merchant service, might be replaced by coffee in temperate latitudes (a pleasant change from the morning cocoa and afternoon tea), and as this is heating, by lime-juice, in the tropics, both healthful anti-scorbutic drinks. To make the diet less unvarying and more assimilative, the harbour ration of fresh beef may be alternated with mutton, and, occasionally perhaps, pork, and succulent vegetables, with potatoes. Another pleasant innovation would be the alternation of the unvarying round of flour pudding and pea-soup at sea, with barley-broth, and rice sweetened by molasses. Three changes may thus be given in temperate regions, and four in the tropics, where both appetite and digestion are capricious, and the need and craving for vegetable food greater. The occasional conversion of the potatoes and rice into soup, and roasting of the fresh beef and mutton, would give still greater variety.

The food required for tropical is identical with that for temperate latitudes, and only requires modification in quantity, as in the proposed scale, to suit the climate and frame. Those decreased in quantity are, the fresh meat in harbour, preserved meat at sea, and the coffee exchanged for lime-juice. On the other hand, the fresh vegetables, potatoes, flour pudding, pea-soup, and other vegetable matters have been suitably increased. For a previously explained reason, the fresh and preserved meat for the tropics have not been reduced below 12 oz. of the one, and 8 oz. of the other. When necessary, a rice day may be added to the temperate dietary to form a useful intermediate scale, which we may term *semi-tropical*; fitted, for example, for the warm summer months of climates like that of England, but more especially for the debatable regions that lie between the wider hot and cool zones on either side of the equator, and the dry monsoon season along certain tropical coasts.

It is essential that the food selected for sea dietaries be easily cooked, an elaborate cuisine being out of place, and for the most part impossible, on boardship, for large bodies of men; still, no object can no object can be gained by keeping it of a primitive character, there being important motives, especially increased comfort

fort if not health, for improving it, at least for not limiting culinary efforts to invariable boiling. Why should not the fresh beef and mutton be occasionally roasted, a better class of cook, and even cooking apparatus be acquired.*

The ordinary boiled form of preserved meat in air-tight tins still appears to rank first among its many younger rivals. That made at the Royal Victualling Yard at Deptford, though dearer, is decidedly superior to any yet submitted for comparison; and it deserves serious consideration whether it would not be better to continue the more costly article, made under Government supervision, than risk again creating a distaste for preserved meat, a casualty which might long prevent the permanent introduction of this great boon. As in harbour, different kinds, at least beef and mutton, should be given for variety. Pearl barley made into broth is a convenient and palatable addition to a sea dietary, and rice, which nature, with singular significance, provides so lavishly in most warm regions, while treacle, which mixes and keeps well, is a convenient sweetener. Much of the vegetable matter (pease, flour, &c.) now issued is highly nitrogenous, and therefore well alternated with hydro-carbonaceous articles like rice. In the tropics, yams, very palatable when well cooked, and pumpkins, which make excellent soup, are good substitutes for the potatoes and vegetables of temperate latitudes. The frequent issue of soft bread, in harbour at least, especially in the tropics, would be both pleasant and salutary. With a diet of this kind, the issue of lime-juice in temperate latitudes might almost be dispensed with, or given only as a precautionary measure on long voyages. At sea, a half ration of chocolate issued to each man of the middle and morning watches, at their commencement, would stay their stomach, and prevent the ill effects which may result from the twelve to fourteen hours' fast between supper and breakfast, during which the system is often much tried by broken rest, meteorological vicissitudes, and other adverse agencies. Water, which can be distilled, and ought to be *issued* in as great purity on boardship as elsewhere, should not be stinted for drinking or culinary purposes, and it is a false economy which limits either. The quantity or quality of that supplied for cleanliness, though important, is a matter of far less moment, and need not be discussed here.

Those changes in the dieting of seamen would be in every way easy; the proposed nearly as uncomplicated as the present scales, and convenient from its easy adaptation to the many varieties of climate and season to which seamen are subjected in the temperate zone, in which they usually work, and tropics, where often sent; and the only argument which can with any fairness be urged against it is, that preserved meat is insipid, and its too frequent issue apt to make it distasteful. But while, on the one hand, it would be varied once or twice a week by salt meat, it is doubtful, on the other, if a prolonged diet of preserved meat of as good a quality as

* Like Benham's, now in use in the Herbert Hospital, and (late) Royal Marine Infirmary at Woolwich.

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as from Deptford, would be as unpalatable as a similar confinement to salt junk, especially if the food is otherwise sufficiently varied. Hitherto the innovation has been attended with satisfactory results in Her Majesty's Navy, the preserved meat being highly appreciated, and much in request, and the same result followed its former issue when good; while constant attention to the quality of the supply, and care in cooking, to make the preserved as far as possible resemble fresh provisions, would do much to diminish the danger of disgust.

The regulation of the change from the temperate to the tropical scale, or *vice versâ*, on entering or leaving either zone, which the adoption of the proposed dietary implies, would be more easy than might be supposed. For though we cannot fairly judge of climate by latitude alone, and the old physical landmarks, the belts of Capricorn and Cancer will not serve our purpose, seeing that places geographically in the temperate zone may possess a sub-tropical or even tropical climate, and others in the tropics a semi-temperate or temperate one, we may do so by heat. In the isotherms of 40° and 70° Fahr., we have a safe guide, inasmuch as all places with an average annual temperature above the latter may be considered as in the tropics, and all between the two in the temperate zone (*map*); and even the average temperature of any place for a few days, a week, month, or better still, its average annual temperature would at once tell which scale the tropical or temperate should be used, or if the intermediate semi-tropical would be more appropriate. Uncertainty of this kind could only arise on the verge of the tropics, and where the climate is neither entirely tropical nor altogether temperate, or tropical during one portion of the year and temperate during the remainder. Well into either zone, and with a decidedly cool temperature on the one hand, or a confirmedly warm one on the other, there could be little hesitation; and in accordance therewith, the seaports of each station in the one, and those in the other, may be fabulated as follows: (Table 4), which might be made the rule, the index of the necessity for a change of diet. These scales would enable us to graduate the seamen's diet, from one suitable for the cold of an English winter, to one for the heat of the thermal equator, as during long voyages across the tropics, when the rapidly changing temperature and climate would be met by corresponding gradations in diet. Thus, leaving England, for example (*map*), on the ordinary temperate scale, the semi-tropical would be adopted on nearing, and continued till the torrid zone was fairly entered, for which the strictly tropical scale should be reserved. South of the equator the routine would, of course, be reversed. Although the alteration of diet in going to or coming from the tropics, according to the proposed scale, is not very great, chiefly one of relative quantity, and moreover salutary, and meant to meet the altered requirements of the system, we should thus lessen or altogether prevent the danger to health which might arise were this change made abruptly, by the institution of the intermediate or semi-tropical scale, which makes the process a more gradual one.

MAP TO SHEW
1st How much of the Foreign Stations are Tropical, and how much Temperate, and how many Forts.
2nd The distribution of Ships on each respectively.
3rd The regions where the Temperate, Tropical and Intermediate Diets should be used.
4th Places where Stores are kept very underland.
NORTH
TEMPERATE
ZONE
TROPICAL
EQUATORIAL
ZONE
SOUTH
TEMPERATE
ZONE
Temperate Diet.
Intermediate Diet.
Tropical Diet.
Intermediate Diet.
Temperate Diet.
Isotherm of 70° Fahr.
Isotherm of 40° Fahr.
Tropic of Cancer
Thermal Equator
Tropic of Capricorn
Semi-Tropical Diet.
Tropical Diet.
Cape and East Indian Command
China Command
Australian Command
Cape Command
Thermal Equator
Isotherm of 70° Fahr.
Isotherm of 40° Fahr.

TABLE IV.—To show how much of the different STATIONS is TROPICAL; how much EXTRA-TROPICAL; and in which of these the various Seaports, &c. lie, Ports where Provisions are kept being printed in CAPITALS. (*To Illustrate the Map.*)

STATIONS, &c.		EXTRA-TROPICAL PART.		TROPICAL PART.	
		Limits.	Principal Seaports, &c. where Her Majesty's Ships Call.	Limits.	Principal Seaports, &c. where Her Majesty's Ships Call.
Temperate (Extra-Tropical)	Home	Altogether extra-tropical	PORTSMOUTH, PLYMOUTH, CHATHAM, &c.		
	Mediterranean	ditto (except the coasts of Tripoli and Barca, seldom visited).	MALTA, GIBRALTAR.		
Tropical	Coast of Africa			Altogether tropical	ASCENSION, SIERRA LEONE, &c.
	North America and West Indies.	From 30° N. lat. northward. (The North American part of the Station.)	BERMUDA, Bay of Fundy, HALIFAX, St. Johns, &c.	From its southern limit as far north as 30° N. lat. (The West Indian Division of the Station.	Windward and Leeward Islands, Bahamas, JAMAICA, &c.; Ports along the Caribbean Sea and Gulf of Honduras (Maracaybo, Carthagena, Aspinwall, Greytown, Baliza); Gulf of Mexico and its Seaports (Vera Cruz, &c.)
	South American	From 25° S. lat. southward to Cape Horn.	MONTE-VIDEO, Buenos Ayres, Falkland Islands.	From its northern limit, where it adjoins the West Indies, to lat. 25° S.	Para, Maranhao, Pernambuco, Bahia, Rio Janeiro.
	Pacific	1. Northern part, to north of 28° N. lat. 2. Southern part, from 21° S. lat. to Cape Horn.	1. ESQUIMALT, San Francisco, &c. 2. Cobija, Caldera, Coquimbo, VALPARAISO, Valdivia, &c.	Between 28° N. lat. and 21° S. lat.	Guaymas, Mazatlan, S. Blas, Manzanilla, Acapulco, Panama, Guayquil, Payta, CALLAO, Islay, Arica, Iquique,
Tropico-Temperate (partly Tropical and partly Extra-Tropical).	Cape of Good Hope and East Indies.	All the southern part of the African Coast to the southward of 28° S. lat. on the East, and of the Great Orange River on the West Coast.	Table Bay, SIMONS BAY, Algoa Bay, Port Natal.	1. On the west side from the Orange River to S. lat. 2. On the E. side of the Cape, from S. lat. 28° n'thward. 3. Also all the Indian Coast as far as Singapore.	Ichaboe. Delagoa Bay, Quilimane, Mozambique, Zanzibar, Tamatave, Mauritius. Calcutta, Madras, Bombay, TRINCOMALEE, &c.
	China	The Station to the north of 28° N. lat.	Ningpo, SHANGHAE, Hangchu, Chusan, Chinkiang, Nankin, Tangchu, Tientsin, Nuchwang, &c. Nangasaki, YOKOHAMA, Hakodadi, &c.	The Station south of 28° N. lat.	Foochaufoo, Amoy, Swatow, HONG KONG, Whampoa, Canton, Kiangchow, Taiwan, Manilla, Singapore, Bankok.
	Australian	All that part of Australia which lies to the south of 23½ S. lat. on the East Coast, and 29° S. lat. on the West Coast.	Brisbane, SYDNEY, Melbourne, Hobart Town, New Zealand and its Settlements (AUCKLAND, Wellington, Nelson, &c.).	That part which lies to the north of 23½ S. lat. on the East Coast, and 29° S. lat. on its West Coast.	Rockhampton, Gladstone, Port Denison, Cardwell, Somerset. Islands in the South Seas (Figis, &c.)

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Appendix, No. IV.

ON THE

VENTILATION OF SHIPS,

IN RELATION TO

NAVAL HYGIENE,

BY

JOHN DENIS MACDONALD, M.D., F.R.S.,
Staff Surgeon, R.N.

THE respiratory process is of such vital importance to the animal creation, that it is not only in continual exercise through the agency of an almost endless variety of mechanism, but many of the bolder phenomena of nature hold an intimate relation to it, and are wisely ordained to furnish a fresh supply of atmospheric air to replace that in which the exhaustion of oxygen and excess of carbonic acid have only rendered it fit for the respiration of plants.

The ceaseless intrinsic movements and currents in the great ocean, with the frequent stormy upheaval of its surface, and the angry fall of its foaming billows, insure the distribution of fresh vital air for the branchial breathing of marine animals. To effect a similar purpose in our aquariums, we imitate this "war of the elements" on a small scale, with an air-syringe.

There can be no doubt that broad-cast death would reign in long continued calms, just as it is known to do in those occasional vast though local "freshes" coming down from the land after much rain, and perhaps also conveying irrespirable materials into the sea.*

But it is in the grand provision for the symmetrical flow and circulation of the ocean of air surrounding our planet, under the conjoint influence of equatorial heat and polar cold, in the theory of cyclones

* Thus, very recently, under conditions such as those above mentioned, countless numbers of the finny tribe were thrown in decomposing heaps upon the Indian coast, and very interesting details of the circumstance were communicated to the Geological Society, by His Excellency Sir William Denison, the then Governor of Madras.

cyclones and storms, in the numerous causes of local atmospheric disturbance, and in the law of the diffusion of gases, we find the basis of all the principles of ventilation that we may practically apply to the more or less confined spaces devised by the civil or naval architect for human convenience or necessity.

Of all the subjects within the range of naval hygeine there is, perhaps, none of more moment than that of ventilation, or the knowledge of all the available means of effecting a permanent and efficient circulation of fresh air through the various compartments of a ship, so that the living and sleeping-places of the sailor in ordinary, or even under the closure of ports and hatches in bad weather, shall be as salubrious as the circumstances may permit.

Want of space on board ship too frequently necessitates the close aggregation of the men, and when this is the case without due ventilation, the waste of air will very soon exceed the supply. Moreover, when the air respired by the sailor is warm, moist, and charged with impurities originating in the ship itself, and emanating from the lungs and systems of his shipmates, sound, refreshing, or natural sleep is out of the question; indeed, it may be safely affirmed that "tired nature's sweet restorer" cannot be thus long or rather repeatedly broken and incomplete in vitiated air, without making a serious inroad upon the constitution, that may, after the lapse of four short hours, be taxed with extraordinary effort in the duties of the deck under inclement weather.

Dr. Reid remarks that "the premature old age which appears "to creep insidiously upon the sailor who sleeps where such an "atmosphere prevails, arises more from this cause than all the other "hardships to which he is exposed, particularly when it is recollected "that his natural sleep is broken by unequal watches, and that he "is not unfrequently called to pass from this enervating and over-"heated atmosphere to encounter all the severities of the storm, "and the coldness of the midnight air."

Impairment of the appetite, tending to a state of debility, is one of the earliest effects of defective ventilation on the system of the seaman; and on looking over the records of the past, we cannot fail to observe, that in by-gone days, from apparent ignorance of this fact, as well as from the narrowness of the resources of the time, the scale of victualling was founded on fallacious principles. Thus, insufficiently oxygenated blood from neglect of ventilation, and inefficient nutrition from a too scanty supply of food, went hand-in-hand re-acting upon one another to bring about that usually high standard of mortality which has happily been so much lowered of late years through the successive introduction of improvements suggested by the advance of the age.

The foregoing remarks will suffice to show the important bearing of ventilation on the health of sailors, but in order to see how far the principles involved in it may admit of practical application to Her Majesty's ships, it will be necessary first to give a general idea of the construction of the hull or shell of a man-of-war.

The keel, frames, and the outer and inner planking or skins of a ship, may be not unaptly compared, both as to the parts themselves and the order of their development, to the vertebral column, ribs,

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and dermal and visceral layers of the vertebrate embryo. It will be perceived from this simple scheme of structure, the ribs being placed at some little distance apart, that the walls of a ship are rendered permeable to air, vapour, and moisture through a system of intercostal spaces, technically termed the "openings," between the timbers. These openings communicate inferiorly with the limbers, or drainage channels, Fig. 1 (a), lying one on either side of the keelson (b), and between it and certain longitudinal pieces, named limber-strakes (c), at the commencement of the inner planking. The limbers are covered over by "limber-boards" (d) extending obliquely from the upper edge of the keelson to the corresponding edge of the innermost limber-strake. The first stout longitudinal series of pieces received into the rabbet of the keel (e) on its outer side is named the garboard strake (f), forming the commencement of the outer planking, which is continued upwards to the "rough tree-rail," Fig 2 (a), running along the heads of the timbers (b), just below the hammock nettings (c). It would be quite needless for our present purpose to enter minutely into the structure of the floors and frame timbers, including the safety fillings between the timbers, introduced by the late Sir Robert Seppings; but, to complete this brief outline, something must be said of the shelf-piece supporting the beam-ends, the waterways resting upon them, and the ports.

The shelf then, Fig. 3 (a), may be described as a prominent ring of the internal planking, forming the marginal support of the deck, receiving the ends of the beams (b), and adding much to the rigidity of the frame of the ship. The butts of the shelf timbers are regularly scarfed together for additional strength, while the segments of the waterways (c), form plain vertical joints, and, like the shelf, they also may be said to compose a stout ring continuous with the internal planking, but resting upon instead of supporting the beam-ends. Thus, the shelf lies in the angle between the beams and the timbers (d) below, while the waterways hold the converse position on a level with the deck (e). From this arrangement it will be seen that the intervals left between the beam-ends, shelf, and the deck above, establish a communication between the intercostal spaces or openings and the interior of the ship, to which important fact we shall again have occasion to allude.

The circulation of air between the skins of a ship is seriously interfered with by the number and position of the ports. Thus, each portsill, Fig. 4 (a) being supported upon the heads of two timbers (b), intercepts three openings in their course. Moreover, when it is considered that the ports of two or more series in line-of-battle-ships alternate with one another, the openings running uninterruptedly from the limbers to the rough tree-rail must be few and far between. Numerous openings are also cut off by the insertion of certain chocks or filling pieces (c) intended to give stability to the ring-bolts used in working the guns. Mechanical difficulties meet us here, but there can be little doubt that if the desirability of providing for a thorough inter-communication and patency of the openings were borne in mind by the practical shipwright, in the course of construction, this important object might be satisfactorily attained by intelligent contrivance meeting every exigency.

Even

Even a very inconsiderable groove made with a gouge across the inner face of a timber (b), meeting with a similar one in the contiguous piece of planking, Fig. 5, would connect two openings efficiently, without materially weakening the fabric. Again where it is necessary to place a filling chock, Fig. 6 (a), between the timbers (b), a groove of this kind on each of the four applied surfaces would preserve the patency of the channel, while the chock itself would be quite as effective.

The heads of the timbers where they receive the portsills are broadly notched, Fig. 4 (d), on the principle that the close apposition of two surfaces of wood having no air-space between them would favour early decay. Now, according to the present system the direction of the notch here spoken of is transverse or athwart ships, awakening the suggestion, that if it were made longitudinally, or parallel with the sill, as shown in transverse section, Fig. 7, an additional object would be answered in the formation of anastomosing canals connecting at least three openings, which would otherwise remain in the condition of a *cul de sac* with a persistent lodgment of fœtid air, by all analogy highly conducive to decay of the timbers and fungoid growth. May we not refer to this very source for the explanation of the remarkable tenacity of infectious matter exhibited from time to time in such of Her Majesty's ships as have been the scene of disastrous epidemics?

That the openings between the timbers, as pneumatic channels, form the natural "uptake" to the foul and heated air of the holds and bilges, we have the most decisive evidence in all ships furnished with ornamentally perforated boards or zinc gratings in the previously mentioned intervals between the beam-ends and shelf-piece. From the position occupied by these spaces it would seem as though the shipwright who first permitted them to remain open had conceived the idea of carrying off the rarified air from the decks and cabins; but this, as every nautical man knows, has proved to be a mistake; again, if it were really intended, as some are disposed to believe, thus to relieve the bilges of their mephitic vapours, it is difficult to say why the latter should be so long and systematically suffered to incommode and distress both officers and men, by continually rolling into their living and sleeping places, through internal ventholes; indeed, it would appear as though actuated by the highly instinctive proverb "what always was must always be," some shipwrights hold to this injurious principle most tenaciously, so that we find it perpetuated even in our most recent ships-of-war.

Some few years ago, in Her Majesty's ship Racoon, actual steam from the boilers found its way into the lining, and was, in due course, carried up by the openings, and finally poured out through the gratings into the breathing zone of the men, to a considerable depth beneath the beams. However they might be accustomed to vitiated air, this was insupportable, and a remedy was sought for immediately; an assistant shipwright was sent off from the dockyard to investigate the case, and the first thing he did was to close up the gratings, and by means of a little instrument, technically named a mouse, consisting of a piece of lead attached to a line,

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the patent openings were explored. In connection with these, vents were made in the inner skin, below the lower deck, leading upwards to outlets in convenient places in the outer skin, and through the plank-sheer from whence the vapour was conducted clear of the hammock netting; the result was a complete success, and proved to be an important supplement to the general ventilation of the ship. The same officer also supervised the construction of an ingenious apparatus for ventilating the ward-room of the "Racoon," consisting of tubes acting one within the other with cowl-heads turned in opposite directions, so that their respective offices of downtake and uptake might be changed at pleasure by trimming to the wind. The principle is well worthy of further study, as bearing upon the question of local ventilation.

The condition of the "Racoon" just noticed would remind one of a washing-day in a laundry, when the ceilings of all the passages are clouded with steam, and those employed in it lower their heads to respire pure air. A similar state of things obtains naturally in the caverns of Nero's Baths in the neighbourhood of Naples. But whether it be steam or foul air, it is sure to accumulate under the beams of a ship where the hammock of the seaman is slung, in the most unsuitable position for his health and comfort.

The practical difficulty of slinging the hammocks at a lower level might be urged by those who are indisposed to take the matter under consideration; but no reasonable thing is impossible. Thus, in the modern iron-clads of the Monarch class, with lofty space between decks, we find a permanent system of transverse iron rods suspended from the beams in the manner represented in Fig. 8, so as to enable the men to sling their hammocks with ease and comfort. Nor is there reason to believe that this arrangement, which cannot fail to be salutary in its effect, has been adopted for any other purpose than one of convenience. Now the practical application of a similar principle to smaller vessels would be highly important as a hygienic measure; so that the sailor shall be neither exposed to currents of cold air on a level with the deck, nor the heated and vitiated air near the beams, but breathe in the more temperate and wholesome intermediate zone.

To the iron beam (a), a series of ring-bolts (b) are fixed to the suspensory rods (d), sustain the horizontal rod (d) with shallow crank bendings, about 14 inches apart, from which the hammocks are hung, without any tendency to slide either to starboard or port. Fig. 9 gives a lateral view of a contrivance of the same nature, which would be a great boon to smaller ships, particularly in tropical weather, with the means of bearing up the rods between the beams when not in use, by means of hooks suitably fixed, as shown at (e). Of course, whether the beams be of iron or of wood, the principle may still be applied, with perhaps some trifling modification to meet special cases.

From what has been already said, the great value of the system of ventilation developed by Dr. Edmonds, Staff Surgeon R.N., will be clearly apparent, especially when it is considered that that gentleman has now availed himself of the opportunity of carrying off the foul and heated air from between the skins of the ship, by conduits

conduits opening into such efficient natural uptakes as the modern hollow iron lower masts constitute.

It so usually happens that ships are first built and then some ventilating scheme is sought for, that it may well be doubted whether the whole power of a perfectly uninterrupted intercostal circulation with proper outlets has ever been fairly tested. We have, however, sufficient knowledge of that effect to see that it cannot altogether supersede the use of cowls and windsails, particularly if in connection with a tubular system below. It will not do to say, that by the removal of foul and heated air, room is made for the descent of pure and cool air to take its place. This latter process must be expedited by conducting fresh air at once to the lowest levels attainable, without waiting for the more tardy process of diffusion.

In the system of Dr. Reid, F.R.S., as applied to Her Majesty's Ship Minden, and other ships, more particularly those of the celebrated Niger Expedition, although he was fully aware of the importance of a free circulation of air between the timbers, he kept the ordinary gratings open, and determined a downdraught through the openings, as it would appear, contrary to the nature of the case, by establishing an updraught through a large median tube furnished with an internal rotatory fan. Now, although the value of a propulsory power cannot be ignored, as we find it employed in the local ventilation of the magazines on the plan of Captain Jerningham, R.N., too much stress cannot be laid upon the wisdom of so wielding existing conditions as to turn them to effective account in the thorough ventilation of Her Majesty's ships and vessels of war.

Explanation of the Figures.

Fig. 1. Midship section of keel and bottom timbers.

(a) Limbers or watercourses.
(b) Keelson.
(c) Limber strakes.
(d) Limber boards.
(e) Keel.
(f) Garboard strake.
(g) False keel.
(h) Half floors.

Fig. 2. Vertical section of top timbers and hammock nettings.

(a) Rough tree-rail.
(b) Top timber head.
(c) Stanchion of hammock netting.
(d) Wooden rails.
(e) Outer planking.
(f) Inner planking.

Fig. 3. Midship section of shelf and waterways.

(a) Shelf-piece.
(b) Beam end.
(c) Waterways.
(d) Timber.
(e) Deck-planking.
(f) Outer planking.
(g) Inner planking.
(h) Iron knee.
(i) Binding strake.

The dotted lines show the course of the bolts.

Fig. 4.

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Fig. 4. Elevation, including one of the ports (inner face).

(a) Port-sill. (b) Supporting timbers.
(c) Chock filling up an opening, to support a ring-bolt.
(d) Broad notch in the timber heads, supporting the port-sill.
(e) Upper port-sill. (g) Openings.
(f) Timbers.

Fig. 5. Vertical section, showing the conversion of the grooves, (b) Fig. 4, into a complete canal, by the apposition of a similar groove in the inner planking (a).

(b) Timber. (c) Outer planking.

Fig. 6. Transverse section of a filling chock, with the grooves alluded to in the text, to render the opening patent.

(a) Chock with its applied surfaces grooved.
(b) Timbers. (d) Outer planking.
(c) Openings. (e) Inner planking.

Fig. 7. Timber heads at the junction of the port-sills, with longitudinal grooves connecting three openings, and suggested instead of the notches (d), Fig. 4.

(a) Outer planking. (c) Openings.
(b) Grooved timber heads. (d) Inner planking.

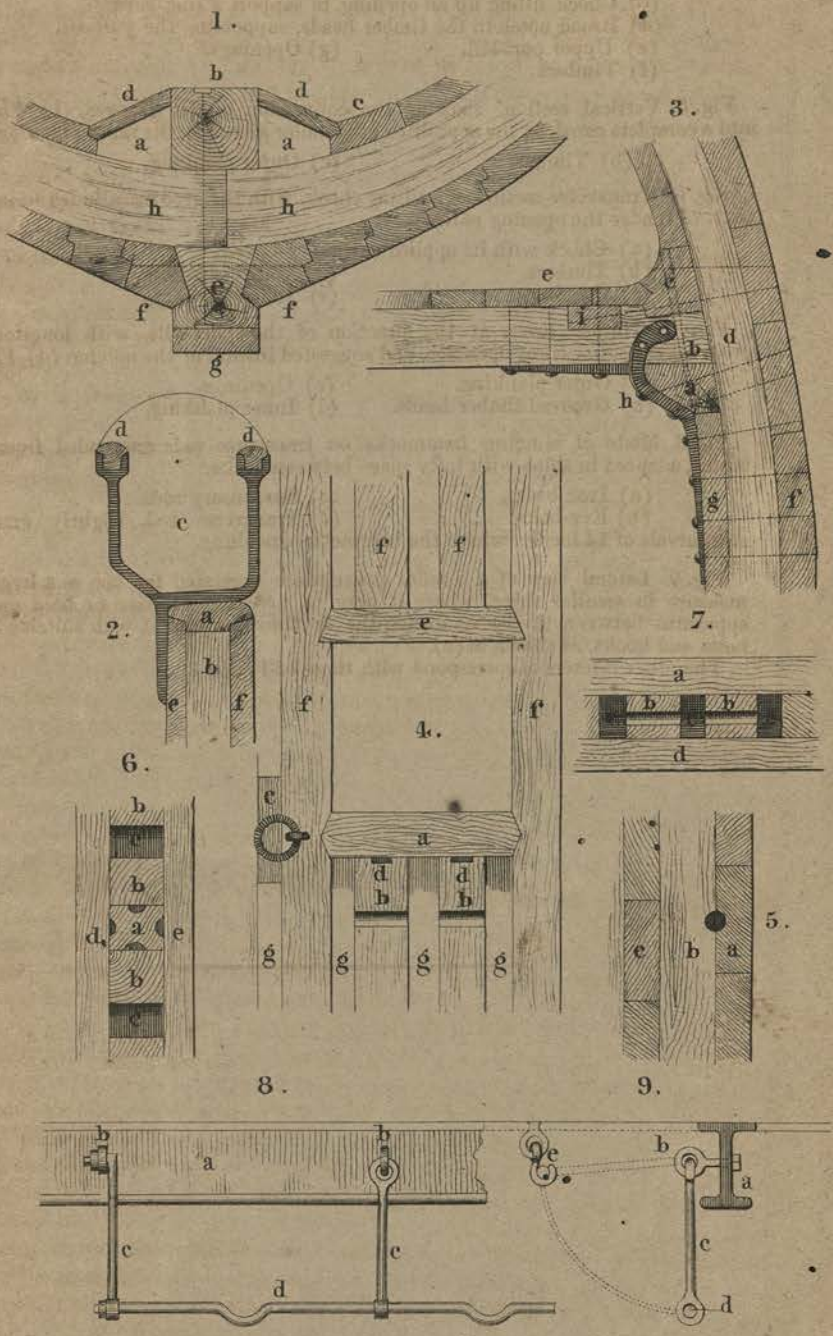
Fig 8. Mode of slinging hammocks on transverse rods suspended from the beams, adopted in ships with lofty space between decks.

(a) Iron beam. (c) Suspensory rods.
(b) Eye-bolts. (d) Transverse rod, slightly cranked at intervals of 14 inches, where the hammocks are slung.

Fig. 9. Lateral view of a similar contrivance suggested for use as a hygienic measure in smaller ships, where it may be necessary to trice or hold up the apparatus between the beams during the daytime, securing it with suitable ring-bolts and hooks, as shown at (e).

The other references correspond with those of Figure 8.

VENTILATION OF SHIPS.



J. D. MACDONALD . DELT.

Appendix, No. V.

REPORT

OF

A VISIT TO THE ISLAND OF MAURITIUS,

DURING THE FATAL EPIDEMIC IN 1867.

By F. H. Blaxall, M.D., Surgeon H.M.S. Urgent.

The island is situated in 20° South latitude, and 57° 30′ East longitude. It is thirty-seven miles long, twenty-eight broad, and of a very peculiar configuration, its mountains being so placed as to form a beautiful plateau in the centre of the island; from this they rise gradually till they attain a considerable height, some over 2,000 feet; they then slope down to the sea on the other side, leaving a large tract of marshy land between the mountains and the water. It is divided into the following districts: Port Louis, Pamplemousses, Rivière du Rempart, Flacq, Grand Port, Savanne, Black River, Plaines-Wilhems, and Moka.

Black River, Plaines-Wilhems, Port Louis, and Pamplemousses occupy the western side of the island, and comprise a great extent of flat land; Rivière du Rempart is at the northern extremity, where it blends with Pamplemousses, having no high land to separate them; it then runs as it were into Flacq, which is on the eastern side. Flacq borders upon Moka and has no naturally defined limit, and Moka joins Port Louis and Plaines-Wilhems, whereas Grand Port and Savanne, occupying the southern extremity and part of the eastern shore, are separated from the other districts by mountainous land.

Mauritius is subject to hurricanes and frequent visitations of lightning, with a great prevalence of south-east wind. Its social condition is peculiar. The great produce is sugar, and to work the estates there was a want of labour, consequently a large number of natives from Madras, Calcutta, and Bombay have been introduced. When first received they are placed upon estates, where they are properly housed, fed, and cared for in every way. After serving their "apprenticeship," the majority remain in the island, and those who make or save money, purchase small plots of land, and build

 hovels

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hovels upon them. A number of these dwellings are congregated together, and are let and sublet till they teem with human beings without the slightest regard for, or effort at, cleanliness or drainage. Indeed, in the town of Port Louis itself, simple tubs are used generally, without any attempt to disinfect the excreta. The essence of filth exudes from them, and I have myself experienced a sickening sensation from the effluvia. Some of these vessels, however, are properly fitted and provided with earth, for the purpose of deodorization. The contents of all are removed in carts, and the noisome foulness of these vehicles, as they slowly traverse the streets of a town in a hot climate, may be more easily imagined than described. The town of Port Louis occupies the flat piece of land between the sea and Port Louis mountains, and is built on the shores of the harbour. There is no drainage, and near the town is a graveyard, the stench from which was very perceptible on board, at a distance of half a mile. For years the island was very prosperous, but latterly it has been less so. The sugar crops fell short, owing to a great drought, which caused a diminution of labour, and in addition to this, provisions, which are all imported, became scarce and very dear; rice, which is the chief food of the Indians, particularly so. The heat has been intense. The usual hurricanes and lightning have not appeared, and the north-westerly wind has scarcely ever changed to the more salubrious south-eastern. In October last there were scattered cases of fever. In January it began to appear in the low land bordering on the sea in the Black River district, and soon assumed an epidemic form. It gradually increased, and spread all along the western shore, involving the entire districts of Port Louis and Pamplemousses. It then crept round the north end of the island into Rivière du Rempart, and so along the flat land into Flacq. Plaines-Wilhems was also affected in its low land near the sea, between Black River and Port Louis districts. Moka likewise had cases, but these occurred in the angle between Plaines-Wilhems and Port Louis, where Mount Ory slopes down to the sea. In the town of Port Louis its increase was truly appalling; business was paralysed, and the most frequent sight that met the eyes was the dead being hurried off for burial. Whole families were swept away; and it is reported that many houses were left without a single tenant. Pamplemousses also suffered very severely. Possibly the Indians coming from a country abounding in paludal fever may have there suffered from it, and were therefore more susceptible of the poison than the other inhabitants; but it attacked all classes, though it was principally fatal to the ill-fed and badly housed. Amongst the better fed classes it was more amenable to treatment, and they generally derived great benefit from change of air, by going up to the high parts of the island, and by crossing over to Savanne and Grand Port. It is particularly worthy of remark, that the fever never spread in those two districts, though a considerable number suffering from it went there. To add to the suffering and misery of this afflicted people, they were short of quinine, which was looked upon as the true panacea, as the one thing that could save life. So scarce was it, that in some instances it was sold for upwards of 8 *l.* per ounce.

Medical

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Medical attendance was also deficient, as one glance at the annexed Table of the number of victims will make easily conceivable. During this fearful time, the Government and the municipal authorities adopted most vigorous and proper measures for vanquishing the fell enemy that had stalked into their midst. Subscriptions were raised, relief committees formed, and hospitals and dispensaries established. They soon found their utmost efforts were required to prevent many of the poor sufferers from dying literally of starvation. The proverbial improvidence of the poor, in all countries, was here made painfully evident. They had had plenty of work and high wages for some time previous, but no provision was then made for any hour of need. There was not even a benefit society or club of any kind to call upon in sickness, consequently they could in no wise assist each other. The duties of the relieving committee were therefore extremely onerous.

The mortality amongst the military inhabiting the barracks of Port Louis was but slight, in comparison with that of the civilians of the affected district, which may be attributed to their better living and housing; this was also the case with the Indians living on estates, and may be ascribed to the same cause. The soldiers were ultimately removed to Flat Island, which is a small island off the northern extremity of the Mauritius, and there the deaths were numerous, particularly amongst the women and children; but I believe most of these were caused by relapses or some sequelæ. Water was bad, and scarce; and, from the weather being unfavourable, there was difficulty in keeping the soldiers provided with provisions, consequently they were frequently on "short commons;" at least such is the information I gathered from the public papers, but I cannot vouch for the correctness of it. The disease appears to have been a remittent malarious fever, at first principally remittent, extremely virulent, attacking its victims and killing them outright, as if by the potency of the poison. Many fell down insensible, never rallied, and died. Those who survived this first attack showed great tendency to cerebral congestion, also of congestion of liver and spleen. The disease had not the characteristics of specific yellow fever; viz., albuminous urine and contagiousness. After a time the fever became more intermittent in character. Relapses were common. These, with sequelæ, must account for the large mortality shown in the accompanying Table, in the column for "deaths from other causes," and which exceeds the usual death-rate of the island. The treatment was sudorifics and quinine, nourishing diet, stimulants when required, and change of air whenever it could be obtained. By these means a great many lives were saved; but it sends a thrill of horror through one to think of the number of victims amongst the poor. From January to July Port Louis lost 16,602 out of a population of 80,000; Pamplemousses, 4,344 out of 60,000; Rivière du Rempart, 1,656 out of 21,000; Black River, 1,960 out of 19,000; Flacq, 892 out of 46,000; Plaines-Wilhems, 1,027 out of 31,000; Moka, 1,080 out of 20,000; whilst Grand Port, with its population of 41,000, and Savanne 23,000, lost none. It is true several died in these two latter places, but they went there from other districts whilst suffering

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from the disease. The fact of the disease not extending to these districts is well worthy of consideration. Indeed, by referring to the Table of the comparative mortality between the first four months of the years 1866 and 1867, it will be seen that the death-rate there was actually smaller in the year '67 than in '66. They are separated from the remainder of the island by high land and an extensive woody district. The railway passing from Port Louis to Mahebourg, the principal town of Grand Port, has no cutting, but makes a gradual ascent to Curepipe, which is about 1,800 feet above the level of the sea, and is the highest part it passes over. Then commences its descent towards Mahebourg. Communication went on daily during the whole period of the epidemic, and many sick of the fever were carried there; yet the disease did not spread, which is a very great argument in favour of its non-contagious nature. Had the disease been small-pox, or any of those generally acknowledged to be contagious, one cannot doubt that the result would have been different. It has occurred to me whether, if there had been a cutting for the railway, the baneful poison would have been wafted along its level, to spread suffering, death, and desolation to those who were mercifully kept exempt from it.

We [illegible] the causes of the fever. The foregoing will have made [illegible] there was a dense, ill-fed, badly-housed population [illegible] crowded houses, closely huddled together without any [illegible] and all of most favourable for the generation [illegible] on low land having high mountains at [illegible] the nature of a great deal of the land being [illegible] covered with vegetation. Excessive solar heat [illegible] which must have caused considerable evaporation, [illegible] could not escape, as the north-west wind prevailed, and the high mountains its passing landward [illegible] to be too heavy to rise and mix with the purer atmosphere. [illegible] know that these paludal poisons "love to lurk [illegible] to hug the earth." Thus we had all the recognised [illegible] generating such a poison, and the people, prepared by [illegible] other depressing and health-destroying circumstances, [illegible] it to prey upon; and fearfully did it accomplish its work. [illegible] Port Louis *losing* one person in *five*, and the [illegible] in eleven of their entire populations. The course of [illegible] favours the opinion of its having been generated on the [illegible] It first appeared and then continued there in its greatest virulence; was carried by north-west wind along the flat surface of the northern extremity, through Rivière du Rempart to Flacq, where it was nothing like so deadly in its operation; it then came in contact with the mountains that divide Flacq from Grand Port, and there is stopped.

Port Louis, where there was such a vast number of victims, is most unfavourably situated, having a high range of mountains immediately at its back, against which the poison must have been driven by the north-west wind, simply to return again like the back lash of water, and then to fall upon the fever-stricken town concentrated

crated and intensified. Several cases of fever occurred amongst the shipping in the harbour, but I could not learn any of the particulars; the vessels, however, were anchored within 400 yards of the shore, and near them is the grave-yard already mentioned, and which gave such unmistakeable evidence of its vicinity when we were entering the harbour, that the general exclamation was, "What is it that stinks so?" Doubtless the effect of such an unwholesome atmosphere would be to render individuals susceptible of malaria, &c. by being prejudicial to general health.

April was the month of the greatest mortality; during it several showers fell; these falling on a parched land, and a burning sun coming out immediately afterwards, would cause an immense and rapid evaporation, that would probably be the more potent from this quickness, and therefore more deadly and effective in its operations. The fever may be said to have commenced in January and gradually increased till April, when it was at its height, upwards of 200 dying daily. In May, the attacks and deaths began to abate, and continued to do so, and when we arrived on the 9th of July, the daily death-rate was between forty and fifty, and on our departure on the 16th, it was still decreasing, the mortality having got down to between thirty and forty. During our stay the wind was from the south-east, but I am unable to say how long it had continued blowing from that quarter, and whether the decline of the fever commenced with the change of wind. Previous to our departure, the Governor had issued a number of professional questions to medical men, and printed questions (respecting the appearance and spread of the fever in their neighbourhoods) to magistrates, police inspectors, members of sanitary and relieving committees, &c. requesting answers, and probably these, when collected, arranged, and digested, will add to our knowledge of paludal fevers and poisons. My time in the Mauritius was short, and being an entire stranger, opportunities of gaining information were limited, but I was careful in my inquiries, and although I cannot vouch for the exact accuracy of the annexed Tables, I am sure they approximate the truth. I append them and the map, thinking they will enable this Report to be more easily and clearly understood. I heard that several individuals had attacks of fever some time after leaving the island; no doubt they received the germ during their residence on its pestilential shores, and that it developed itself afterwards as we know coast fever does sometimes. No case, however, occurred in this ship.

A large number of porters, police, railway-men, and others employed on out-door work were sufferers, which leads us to seek the cause in the atmosphere; certainly, many nurses and other attendants upon the sick succumbed to the disease, but it must be remembered that they, in addition to their depressing and harassing duties, were living in low places and exposed to the poison. I do not think there were sufficient victims amongst the medical men to make one consider their attacks due to contagion, and its not having been carried to Grand Port and Savanne also favours the opinion of its non-contagious nature; so that I may sum up by saying, I am of opinion that the fever was malarious, non-contagious, and caused by poison generated on the marshy lands of the western shore, favoured

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by almost unprecedented heat, and its escape prevented seaward by the continual blowing of the north-west wind, in place of the generally prevailing south-eastern. There was much less lightning than usual, and no hurricanes; therefore the electric state of the atmosphere may also have favoured the generation of the poison, and the great mortality was due to the impoverished and depressed state of the people.

Government can adopt measures for the prevention of another such a fearful visitation, by enforcing sanitary regulations upon the towns and villages, and by preventing overcrowding of houses, &c., but whether it be practicable to drain the marsh land I am unable to say. I trust it may never again be my lot to see so much suffering; a settled gloom appeared to hang over the entire place; business was stagnated; nearly every individual was clothed in black, and their faces were sad and sorrowful as they went about thinking of and mourning some dear departed one. Everything gave proof of the great calamity that our all-wise Maker had permitted to visit this beautiful island.

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